TECHNOLOGY DEPARTMENT

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# AIR CONDITIONING AND REFRIGERATION News

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## INSIDE DOPE

by GEORGE F. TAUBENECK

The Story of the Week
The State of the Unions
No Room for Hate
Man's Inhumanity to Man
Streamline Slavery—1947 Model
Chiselers Will Always Chisel
Recommendations to Congress
There Is Hope for the Union Movement
Give the Unions Back To the Workers

### *Story of the Week*

A visitor to Hollywood went overboard in his praise of a beautiful new prodigy's exceptionally lovely hands.

"Yes," agreed her agent, "my client's hands are truly wonderful. I'm planning to have a bust made of them."

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### *The State of the Unions*

All the wisdom and forbearance needed for the parlaying of These Parlous Times isn't a monopoly of the capitalists and the managers. The following full-page advertisement, written, sponsored, and paid for by a labor union, has appeared in some newspapers:

"It has long been the custom for the President of the United States to deliver an address to the incoming Congress. This so-called 'Report on THE STATE OF THE UNION' is, in effect, a formal report on his stewardship. The purpose is to outline the activities of his office which naturally affect the state of the Union, and invariably suggestions considered by the President to be important to the national welfare are made to the Congress.

"This report of our nation's President immediately suggests to my mind another kind of presidential report, one also affecting the national welfare. It would be extremely interesting today to hear a number of these. I refer, of course, to possible reports by all our union presidents on 'THE STATE OF THE UNIONS.'

"Not being a wishful thinker, I have no hope of seeing any such report forthcoming at this moment. The reason for my lack of hope is simple: it is because the 'stewards' of many of our unions find themselves, through poor stewardship, in no position to render a full and accurate report on the state of their unions.

"I am nevertheless of the belief that such reports should be now obligatory. It is the nation's due that the state of the unions should be clarified. Also that this inner economic government shall be put to functioning along far more democratic lines.

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### *No Room for Hate*

"Through present-day manipulations of union-bossism—in many cases a far cry from unionism as faithfully conceived—this country has been thrown into a state of economic chaos, if not actual economic revolution, from which there is small chance for escape unless remedial measures are immediately found and applied.

"In searching for a remedy one consideration is of utmost importance: we shall first have to purge all hatred from our hearts and place the welfare of our country above every selfish inclination—whether we be worker or employer, politician or private citizen. Minus such a general attitude, we cannot hope to make order out of chaos.

"Although I lay no claim to being an economic doctor armed with a cure-all, I nevertheless believe myself to be in a position to offer a number

(Continued on Page 10, Column 3)

## *Frigidaire Shows New Range Line To Distributors*

DAYTON, Feb. 3—Frigidaire Division of General Motors highlighted its four-day National Distributors' meeting—which opened here today—with announcement of a complete new line of electric ranges. New commercial refrigeration and air conditioning products are also being introduced to executives of the distributing organizations.

Production of five new range models is scheduled to start this month, P. M. Bratten, general sales manager, told the distributors.

While details of the new products were not disclosed, it was learned that the new ranges will feature a roll-front one-piece cooking top and a full-width utensil drawer. The fully automatic deluxe model will have two ovens.

Sales, advertising, and training plans were reviewed during the meeting. The national conference will be followed by a series of field meetings for Frigidaire dealers and salesmen throughout the country. Plans have been geared to cover all current and new lines of appliance, commercial, and air conditioning equipment.

In charge of opening sessions this morning was H. F. Lehman, assistant general sales manager. Principal speakers were W. F. Switzer, marketing research manager; H. M. Kelley, appliance sales manager; P. M. Brennan, commercial sales manager; and A. C. Freimann, assistant commercial sales manager.

## *Stangard Files Plans For Reorganization*

NEWARK, N. J.—Stangard-Dickerson Co. here has filed proceedings for reorganization with the Federal Court and in the meantime is continuing operations, company officials stated this week.

"Company is operating as heretofore from our headquarters at 46 Oliver St. No change in the status of the company is contemplated," the statement said.

## Reg.W Slows Vacuum Cleaners, Mfrs. Say

CLEVELAND—Branding the Federal Reserve Board's consumer credit controlling Regulation W "discriminatory" and "holding back the proper flow of vacuum cleaners into American homes," the Vacuum Cleaner Manufacturers' Association has petitioned the Board to remove vacuum cleaners from the restrictions of the regulation.

The petition states in part:

"Our industry is anxious to continue producing and selling vacuum cleaners in volume as it has been during the past few months, but feels very definitely that to be able to do so, they need to be removed from the list of products still controlled by Regulation W.

"Vacuum cleaners always heretofore have been sold with a reasonable down payment and on monthly terms. According to the most recent national figures, approximately 50% of the 30,000,000 wired homes in the United States are still without the services of a vacuum cleaner, indicating that many families are waiting to purchase, provided satisfactory terms are permitted."

The petition points out that applying credit restrictions to vacuum cleaners and not to most other consumer products is "highly discriminatory."

It adds that requiring the prospect to make a down payment before a

(Concluded on Page 4, Column 3)

## Retail Credit Plans of Banks In N. Y. Hit

NEW YORK CITY — New York state banks have been virtually ruled out of the consumer credit business before they start by an opinion handed down by the state attorney general limiting them to the legal 6% interest rate in all discounting of commercial papers for "individuals," according to financial circles here.

New York bankers claim that this strict interpretation of the law will render such credit activities profitless. They point out that the bulk of consumer credit for durable goods is transacted by "individual" dealers.

The ruling does not affect transactions with incorporated dealers, but these, the bankers say, constitute only a small portion of the total business.

New York bankers now think that they will not even be able to keep up the limited consumer credit operations that they have already started, and will have to abandon the field to other commercial credit organizations.

## REWA Holds Annual Meeting March 20-22

CHICAGO — Three business sessions, meeting of regional groups, a past presidents' dinner, the annual dinner-dance, a breakfast session with entertainment, and a luncheon have been programmed for the twelfth annual meeting of the Refrigeration Equipment Wholesalers Association to be held at the Edgewater Beach Hotel here March 20, 21, and 22.

Preceding the official opening of the meeting on Thursday, March 20, R.E.W.A.'s board of directors will convene Wednesday morning at the hotel. Thursday morning will be largely devoted to registration of members and perhaps committee meetings, but on Thursday afternoon the association's various regional groups will meet separately to clean up unfinished business and prepare items for introduction at the annual meeting.

First meeting of the association proper will be held at 9 a.m. Friday in the East Lounge following an 8 a.m. breakfast session in the North Lounge for wholesalers and their wives. Papers will be read on various problems confronting wholesalers and regular association business conducted. There will be no outside speakers, and attendance will be limited to R.E.W.A. members. This restriction will hold true of all meetings except the entertainment features.

After a luncheon Friday, an afternoon business session is scheduled. At this time nominations for four

(Concluded on Page 4, Column 3)

## Court Names Receiver For Cornelius Co.

MINNEAPOLIS—Following a temporary interruption for inventory, the Cornelius Co. will resume production to fill present orders for its line of beer pumps, pressure regulators, and other bar equipment, even though the firm has applied to Federal Court for reorganization and a receiver has been appointed by the courts.

Brace Bennitt, executive secretary-treasurer of Associated Creditors, Inc., here, has been named receiver. He announced that the court had instructed him to operate the business with the purpose of doing everything possible to work out this reorganizational problem.

## *Noma Cuts Prices $51 on 12, 20 ft. Home Freezers*

NEW YORK CITY—An immediate reduction of $51 on both the Estate and Frigid-Freeze home freezers, in 12 cu. ft. and 20 cu. ft. sizes, has been announced by John M. Bess, executive vice president of Noma Electric Corp. appliance divisions.

"That puts us one dollar up on Ford," says Mr. Bess.

The 12 cu. ft. model, formerly $450, will now sell for $399. The price of the 20 cu. ft. model has dropped from $650 to $599.

The new prices were established to conform with the price practice of some stores and to equalize the advantage to all, he explained.

Mr. Bess expects that the reduction in price on these larger sizes will lead to additional consideration by consumers of the greater advantages resulting from the use of such sizes as compared to the smaller units.

"Frozen food cabinets in the home have a way of growing on you," observed Mr. Bess. "A family of four or five can quickly outgrow a small cabinet, once the use of frozen foods becomes a regular habit and the use of the cabinet, in storing away the goodness and deliciousness of fine foods for later use, becomes better understood."

Mr. Bess stated that in order to make the price reduction, Noma needed assurances from its suppliers that it would receive the necessary materials and component parts for uninterrupted production.

To get this assurance, Noma appliance divisions, the Estate-Heatrola division and Refrigeration Corp. of America, conducted a special campaign recently to help sell them on the future of the frozen food industry and on Noma's plans for itself in that future, according to Mr. Bess. The campaign was very well received by the suppliers, he indicated.

## Dealers Get 10% Cut On National Cooler

CLEVELAND — A 10% reduction in dealer's price on the new 1947 line of dry beverage coolers produced by the National Cooler Corp. here becomes, effective today, Feb. 10, William Drosd, National Cooler's president, has announced.

Because of the uncertain situation in the steel market, this reduction may not last longer than 60 days, Mr. Drosd warned. "After that, it is anybody's guess," he declared. He explained that National Cooler is protected on materials for only 60 days.

In announcing the 10% reduction, Mr. Drosd pointed out that his firm has increased its costs about 30% in the manufacture of its 1947 line, which has many new features.

"Combining both figures, it means a much greater value than only the 10% reduction," he stated.

Mr. Drosd said that National Cooler's stainless steel open kitchen equipment and its stainless steel under bar workboards are now being considered for price reductions.

## *Alabama Urges Utilities Drop Appliance Sales*

MONTGOMERY, Ala.—Calling attention to what it described as complaints of "unfair competition," the Alabama Public Service Commission asked electric and gas utilities in the state to "consider the advisability" of withdrawing from the appliance merchandising business.

The matter was raised by the commission in a letter to President

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## ASHVE Plans Heating Show For Next Year

### *Attendance at Cleveland Meeting Sets Record Total of 2,200*

By C. Dale Mericle

CLEVELAND — With membership in the society at an all-time high, attendance at the fifty-third annual meeting of the American Society of Heating and Ventilating Engineers broke previous records, more than 2,200 being registered at the four-day meeting.

Many members and guests stood up to listen to the afternoon forum on panel and radiant heating, while to accommodate the banquet guests the Hotel Statler crowded tables into the foyer and balcony of the ballroom.

Next meeting of the society has been set for June 2 to 4 in the Hotel del Coronado, near San Diego, Calif., and the next winter meeting will probably be held in New York City beginning Feb. 2, according to reports following the meeting here.

The Heating & Ventilating Exposition, which the A.S.H.V.E. sponsors, will be repeated next year in New York City also, running concurrently with the society's meeting, according to present indications.

**Descriptions of equipment exhibited at the recent Heating & Ventilating Exposition, which will be of particular interest to readers of the News, are published on pages 17, 18, 19, 20, 21, and 24 of this issue.**

A major event of this year's meeting was the formal dedication of the society's new Research Laboratory in Cleveland, which was acquired in 1946. In making the dedication address at the laboratory during the first session, Dr. Arthur C. Willard, former president of the University of Illinois and past president and life member of the A.S.H.V.E., stressed the fact that the A.S.H.V.E. is the only engineering society operating its own laboratory, and urged that the group give broader publicity to its research findings.

"The society must never forget that its research . . . is not an end in itself. Trained engineers are needed to apply it," he declared.

An unusual feature of the first session at the laboratory was the

(Concluded on Back Page, Column 1)

## Pizor Appointed Norge Eastern Sales Manager

DETROIT—R. H. Pizor, formerly manager of laundry equipment sales, the Norge division of Borg-Warner Corp., has been appointed sales manager, eastern region, effective March 1, with headquarters in New York City, it was announced by M. G. O'Harra, Norge vice president and director of sales.

He succeeds E. L. Frohlich, who has resigned the position to become vice president in charge of sales, the Warren-Connelly Co., Norge New York distributor.

Both men are pioneers with the company, Mr. Pizor having joined the firm in 1934. According to Mr. O'Harra, he was selected for the position in the east because of his wide acquaintance in that area, a major portion of his business career having been spent in contacting eastern appliance dealers and distributors. He is the third oldest man in the Norge sales department from the standpoint of service.

Prior to and shortly after the recent war, he was a key sales

(Concluded on Back Page, Column 3)

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## One Firm Ups Copper Price to 20½ Cents; Others Hold Steady

NEW YORK CITY—Quite a flurry was raised in the copper industry last week when American Smelting & Refining Co. raised the price of electrolytic copper to 20½ cents per lb., the highest price asked for that metal since 1929.

Only one other custom smelter followed the lead of American Smelting in deserting the 19.5 cent level previously maintained. Other companies are still selling copper at 19.5.

Though the copper industry agrees that this dual price level cannot long continue, it is divided as to whether the level will move to 20.5 or remain at 19.5.

Copper fabricators complain that the increasing price for copper, passed along by raising the price for copper products, will drive their customers to the use of aluminum, seamless steel, and plastics.

American Smelting's action was attributed by copper producers to the present acute shortage in copper scrap.

Held at 12 cents per lb. by the OPA during the war, the price of the red metal was raised to 14⅜ cents per lb. just before the demise of that agency. On Nov. 12, the price was boosted to 17½ cents and little over a week later to 19½ cents.

A high of 23⅞ cents per lb. was reached in 1929. However, that price soon dropped fast.

## *Heat Pump Costs Vary By Type of System, But Compare Favorably*

NEW YORK CITY—At the present time, heat pump units using the earth as a source of heat have the cheapest initial cost, though those using water are not far behind, according to Dr. E. N. Kemler, head of the Engineering research division of the Southern Research Institute at Birmingham, Ala. Air to air units, he said, have the highest initial costs.

Speaking before the New York chapter of the American Society of Heating and Ventilating Engineers recently, Dr. Kimler expressed the opinion that heat pump units, using reverse cycle refrigeration, should keep their operating cost competitive with conventional methods when both heating and cooling are involved.

The initial cost of the present packaged units are already as cheap as two separate conventional systems, one for heating and one for cooling, he declared.

However, this cost is still high because neither of the two companies already in production are producing heat pump units in large quantities. With greater production, the cost will undoubtedly drop, he averred.

Pointing out that a heat pump is more efficient at a low temperature heat emission than at a higher one, Dr. Kemler said that the air temperature from a heat pump in winter time must be kept as low as possible.

This means that a large volume of air must be circulated to meet the heat loss from the building.

That is the principal difference in design technique required by the engineer applying the heat pump system, he added.

Discussion following Dr. Kemler's address brought out the fact that a heat pump can be installed in a structure of any size. It was said that there are several installations in quite large buildings.

Dr. Kemler began his research on the heat pump before the war at Purdue University and continued it at Southern Research Institute. He is now studying this type of system for the Southeastern Electrical Exchange.

## Westinghouse Reduces Sunlamp Price One-Third

PITTSBURGH—A one-third reduction in the list price of the Westinghouse sunlamp, effective Feb. 1, has been announced. The new price of the sunlamp is $9.95 compared with the $15 list which has been in effect since the lamp was introduced after the end of the war.

The lower price was made possible by manufacturing cost reductions achieved through utilizing modern mass production methods and improved manufacturing techniques, the company's lamp division said.

The sunlamp is a 275-watt reflector-type bulb which screws into any regular light socket and operates on alternating current electricity.

### Wis. Supplier In New Home

MADISON, Wis.—Automatic Temperature Supplies, Inc., parts wholesaler here, opened its new home at 523 E. Main St. with an open house Jan. 16.

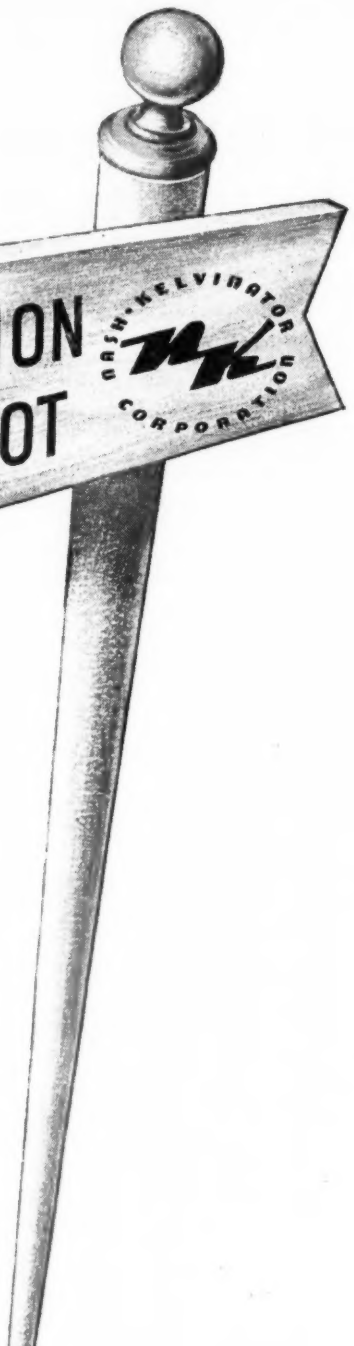
## *Steel Supply Picture Brightens as Labor Peace Seems Likely*

NEW YORK CITY — Since July, 1946, the nation's steel industry has been producing its highly sought after product at an annual rate of 75,000,000 tons, much higher than any previous peace time rate, steel company officials point out.

In every month since July, with the exception of December when the effects of the soft coal strike were felt, production surpassed 6,300,000 tons.

January production is expected by the industry to total more than 7,000,000 tons.

Steel producers feel that they have good chances of maintaining the estimated January production because of the extension of wage contracts until April 30. They are confident that the question of wages will be settled on a friendly basis before that deadline rolls around, it is said.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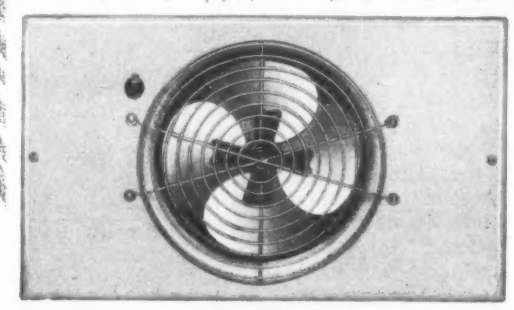

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**HAMMOND, INDIANA**

# Housewives Now Get Airline Frozen Meals

NEW YORK CITY—The complete frozen meals of Maxson Food Systems, Inc. have been placed on sale in New York City.

Maxson meals were developed early in 1945 but, heretofore, demands of the Naval Air Transport Service, which has served them all over the world, and, more recently, service of Maxson meals on Pan-American World Airways, has taken up the entire production. Production now has been extended to a point enabling the company to get into the New York City area for the housewife.

Each meal consists of an entree and two vegetables. Steaks, turkey, goulash, shrimp, lamb, and other entrees are included.

Within the cellophane-sealed package of a menu is a fibre plate divided into compartments for the three components of the meal, inserted into a newly designed, attractive cardboard box. The cooked and frozen meal is heated in the home oven for 25 to 30 minutes right in the fibre plate. Dishwashing can be forgotten, since the meal may be eaten from the same fibre plate.

Among available menus are:

Frankfurters and sauerkraut, mashed sweet potatoes, glazed apples, 74 cents.

Spaghetti with mushroom and tomato sauce, spinach pimiento, bread sticks, 82 cents.

Sliced pot roast of veal, dressing, gravy, mashed sweet potatoes, peas, 82 cents.

Fried hamburger, mushroom sauce, green beans, butter sauce, French fried potatoes, 94 cents.

Chicken patties, mixed vegetables, potato Boulangere, 98 cents.

Creamed curry of veal with gravy, boiled rice, spinach pimiento, 98 cents.

Shrimp a la Creole, peas, butter sauce, French fried potatoes, $1.07.

Boston blue fish courtboullion, peas, butter sauce, French fried potatoes, 98 cents.

Beef goulash, gravy, peas, butter sauce, potato patty, $1.14.

Sliced roast turkey, dressing, gravy, peas, butter sauce, mashed sweet potatoes, $1.34.

Swiss steak, gravy, lima beans, butter sauce, potato Boulangere, $1.39.

Pot roast, gravy, corn a la Mexican, potato patty, $1.43.

Roast lamb, gravy, lima beans, butter sauce, potato patty, $1.43.

Sirloin steak, mushroom gravy, lima beans, butter sauce, French fried potatoes, $1.94.

Tenderloin steak, sauce Bercy, green beans, butter sauce, French fried potatoes, $1.99.

# Slasor Sees 400,000 Home Freezers Sold In 1947, But Calls 'Show 'Em' Selling Vital

CHICAGO—From a present market "scratch" of less than 150,000 units in use, 1947 will add something like 400,000 home freezers, leaving a foreseeable natural market of at least as many units as a starter for 1948, declared F. M. Slasor, manager, refrigeration sales division, Hotpoint, Inc., in launching a training school for home economists and consultants through Hotpoint Institute to assist dealers in home freezer sales.

Noting that the home freezer industry has not as yet moved into "the competitive area of other appliances," Mr. Slasor predicted that strong competition would characterize the industry's future, saying: "This appliance is in the same situation as was the refrigerator 20 years ago, and it is not a question of whether there is a wide demand; rather, it is a question of merchandising."

He said that housewives must be sold on the economy and utility of home freezers, and that the sale would start after a woman said that she was not interested. To implement the company's dealers for this, Mr. Slasor said that the Institute would place special emphasis on instruction in the proper preparation of foods for freezing.

In selling a new product such as the freezer, salesmen cannot describe its proper operation. Customers must be shown, and to do this they must have proper instruction, the official said. Hotpoint's home economists will headquarter at the company's four regional offices: Atlanta, Chicago, New York, and San Francisco. The dealer training will be conducted through the home consulting departments of large stores and similar departments of electric utility companies.

Mr. Slasor said that the early competitive selling period for home freezers would find them subject to seasonal needs of consumers. He cited the canning season as the peak sales period for home freezers.

"Our home use-value training will be directed immediately toward education on preserving home-grown foods. There is no doubt that a large commercial food business will develop, supplying consumers with volume packages for home storage, but it is doubtful that such supplies of commercial goods will be available by 1948."

He added that the economy or money-saving phase of all appliance operation must be placed first in merchandising.

Asserting that discussions of home freezers have been confined largely by whether or not a specific class of people would buy them, Mr. Slasor said that the question will be "whose unit will they buy?" To meet this condition, Hotpoint Institute consultants are schooled in teaching the "built-in qualities of our product; starting with such advantages as the baskets to make for flexible use and the counter-balanced door."


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MODEL SD 20 (right)
7' All Porcelain Cabinet

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MODEL DF 6 (left)
44" Enamel Cabinet

Especially designed to meet requirements of the average market where space is not available for larger cabinets, or the weekly gross does not warrant larger investment. Also suitable for self-service Ice Cream. An efficient and economical unit.

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## New Admiral Distributor Starts Off with Carloads

OMAHA, Neb. — Paxton & Gallagher, Nebraska's largest wholesale food company, has secured the distributorship in Omaha territory for Admiral Dual-Temp refrigerators, and recently received a multiple carload shipment from which samples of the new refrigerator have been shipped to several hundred dealers, according to F. R. King, company executive.

Approximately 250 dealers gathered at the Paxton hotel recently to view the unveiling of the Dual-Temp, Paxton & Gallagher officials reported.

The following officials of Admiral Corp. were in charge of the meeting: W. C. Johnson, general sales manager; P. J. Deluhery, southwestern regional manager; and Willie Mae Rogers, director of home economics.

The Omaha company also has established a model kitchen, featuring the Dual-Temp, in the plant at 10th and Jones Sts., with Miss Pat McMahon as home economist in charge. She pointed out that through the medium of her home service department, she has a free service to offer women's groups in the matter of cooking and food demonstrations, facilities for group meetings, and will arrange special appointments for individual club, church, or social groups.

## *Yaeger Heads Domestic Sales for Wholesaler; Named Vice President*

RIDGEFIELD, N. J.—George H. Yaeger, for the past year general sales manager at the Melchior, Armstrong, Dessau Co., has just been promoted to vice president in charge of domestic sales.

Excepting three years during the war, Mr. Yaeger has been continuously associated with the firm since 1933. He was formerly manager of the company's Baltimore, and Washington, D. C. offices, as well as head of the New England division.

## REWA Meeting--

*(Concluded from Page 1, Column 3)*

new directors will be presented and voted upon. When this session concludes, the directors will meet to elect new officers.

Present nominees for the board of directors include:

George J. Roche, Region 3, nominated to succeed himself;

H. W. Holt, Region 5, nominated to succeed President T. I. Glou, whose term expires;

J. P. Glass, Region 6, nominated to succeed H. W. Small;

R. L. Hinshaw, Region 9, nominated to succeed Harold G. Stern.

The terms of both Mr. Small and Mr. Stern are expiring.

Third business meeting of the group will start at 9 a.m. Saturday morning. Pending business will be completed before reports are received from the regional groups, and upon completion of all regular business, this session will be opened to discussion from the floor. It is expected that the Saturday morning session will be concluded by noon, although arrangements have been made to continue into the afternoon if necessary.

Of the two social events planned, which unlike the business sessions will be open to other than R.E.W.A. members, one marks an innovation for the association. The first past presidents' party will be held Thursday evening, with a cocktail party from 7 to 8 p.m. as part of the overall program. Past presidents (there are now 11, nine of which are still active in the association) will be feted at the speaker's table. Music and a floor show are scheduled, and there will be no speech-making, it is promised.

The annual banquet and dance is planned for Friday evening at 7 when new officers and directors will be introduced and testimonials presented to past presidents. Here, again, speech-making will be limited.

## Utilities Urged--

*(Concluded from Page 1, Column 4)*

Thomas W. Martin of the Alabama Power Co., which also operates a gas system at Phenix City, and invited comment "so that we . . . could decide what future action might be expected."

Signed by Chairman Gordon Parsons and Associate Commissioners Jimmy Hitchcock and Jack Owen, the letter said "numerous complaints had been received from appliance dealers claiming it was "unfair competition for the utilities to be in the merchandising business."

The commission said one complaint was that electric and gas companies get the first opportunity to sell to prospective new customers, because newcomers have to sign up for service, thus making their names available.

Another complaint was that utilities have an advantage in being able to absorb the "greater part" of the cost of billing and collecting on instalment sales by adding the account to the customer's regular gas and electric bill.

A further objection cited by the commission was that some utilities have shown a "very substantial loss" at time in the sale of appliances and "this, of course, is reflected as an additional burden on the rate payers of the company.

The state regulatory agency said it referred chiefly to large appliances and not to light bulbs, fuses, etc.

## Vacuum Cleaners--

*(Concluded from Page 1, Column 2)*

vacuum cleaner can be left in the home for trial causes misunderstandings with the customer and loses sales for the salesman.

It argues that removing charge accounts from the control of the regulation works a hardship on the customer who has no charge account and wants to pay for the vacuum cleaner out of his income.

It points out that a majority of families earning less than $3,000 per year wish to buy consumer durable goods out of present income "by means of a reasonable down payment and acceptable monthly terms."

If terms of sale are returned to the retailers, more vacuum cleaners can be sold on terms satisfactory to both the retailer and consumer, and more will be manufactured. This, it says, will maintain and possibly increase employment.

## *3 Kelvinator Men Win Promotions*

J. W. KEUPING — A. S. LAWRENCE — HOMER L. TRAVIS

* * *

### *Travis, Lawrence, Keuping Are Appointed to Executive Sales Posts with Nash-Kelvinator*

DETROIT — Three new appointments to Kelvinator sales executive posts have been announced by Charles T. Lawson, vice president of Nash-Kelvinator Corp. in charge of Kelvinator sales.

In recent moves, Homer L. Travis became western regional sales manager, A. S. Lawrence succeeded Mr. Travis as metropolitan markets division manger, and J. W. Keuping took charge of sales operations.

Prior to joining Kelvinator in 1943, Mr. Travis was general manager of the Livingston Furniture Co. of Canton, Ohio. He entered the appliance field in 1927 with a leading appliance manufacturer and during the next 15 years successively held nearly every executive zone position.

Mr. Lawrence, who has been Kelvinator range sales manager since 1944, entered the appliance field in 1932 with the Connecticut Light & Power Co. Starting as a retail salesman he later became responsible for electric range and water heater sales in the company's northern division.

He became range sales manager of Kelvinator's New York zone in 1940. Since that time he has worked closely with department store and major market merchandising problems.

Mr. Keuping has been business management manager of Kelvinator since July, 1941. Before joining Kelvinator in April, 1940, he had been controller and assistant to the president in a department store for six years.


NEW HANDEES BIGGER CAPACITY
DUAL WHEEL APPLIANCE TRUCK ROLLS VERY EASY

*Rolls Like a Baby Buggy on 4 Big Unusually Resilient, Quiet Rubber Tires*

**Order Monday Get Friday IMMEDIATE DELIVERY**

**MODEL 88R** This new HANDEES Dual Wheel Truck designed especially for appliance and refrigerator dealers. **31.95 f.o.b.**

- Makes easier handling of large heavy appliances up to 1000 lbs.
- Handles large crates, or stacks of cartons as well as appliances. Most special refrigerator trucks will not satisfactorily handle other loads.

*Dual Wheel Advantages:* Gives a more solid footing, making it easier to "break-over" the load, and far easier to get rolling. Strain on arms is reduced on uneven floors, for there is less side-wrench with 4 wheels. It is almost impossible to side-tip this truck no matter how far the load extends beyond width of the truck because of the extra stability gained by the 4 wheels.

*Quiet, Resilient Tires* will not mar, scratch or track your fine floors, or your customer's. They roll easily over uneven floors or over small obstacles found on many floors, without the sudden "slewing" around experienced with smaller or single wheels when you run into some small object. Wheels are 8x2 Rubber of exceptionally resilient durable quality. Famous Chrysler Oilite bearings.

*Light Strong Frames* of 1" O. D. tubular steel, all welded construction, give strength without useless weight. The only thing really heavy is the 24" nose piece made of quarter-inch steel armor plate. Yet the entire truck weighs only 46 lbs. Height 54"; width 24". Curved cross straps 13' web strap, with buckle. *Try at our Risk.* Over 15,000 HANDEES trucks sold by mail on our simple guarantee, "Send back any HANDEES truck collect if it doesn't fit your needs."

Same Truck With Single Pair 8 x 2 Wheels **$26.95** is Model 82R

**A Good Lower Priced Appliance Truck 19.95**

**MODEL 50R**

Rubber Tires; 600 lb. Cap.; Height 44"; 5x2" wheels; 1" tube steel frame; Chrysler Oilite bearings; Easy rolling. For medium size appliances and refrigerators and for all general purposes. Thousands in use. Not padded. Shipped same day order received. Return express collect if not highly useful to you. 1% 10 days.

**Light Single Handle Truck**

Model 35, pictured left. For shop and delivery use. 43" ht. Curved cross straps. 5x1 rubber tires, with Oilite bearings. Tube steel. Shipped from stock same day order received. **$9.95**

ORDER FROM **HANDEES CO.** Dept. AC-2 BLOOMINGTON, ILL.

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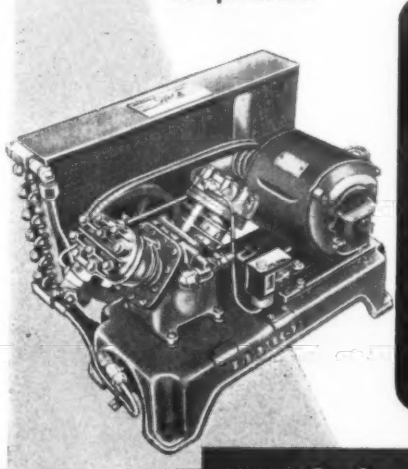
says the LEHIGH TEAM

● It's not just a matter of better design or finer construction that enables BLU-COLD to make such a fine field record. The real cause lies in the smooth cooperation of management, engineering and labor, with each striving for perfection in its own specialized field. The "LEHIGH TEAM" is more than a fanciful slogan. It's a real combination of serious, earnest men, grouped together to make "America's Finest Refrigeration Compressors."



*Now In Production*

1/4 — 1/3 — 1/2 — 3/4 and 1 H.P.

HEAVY DUTY UNITS

*Complete Line to Include up to 5 H. P.*

Lehigh BLU-COLD COMMERCIAL REFRIGERATION

*Lehigh Mfg. Company*

PLANT: LANCASTER, PENNSYLVANIA

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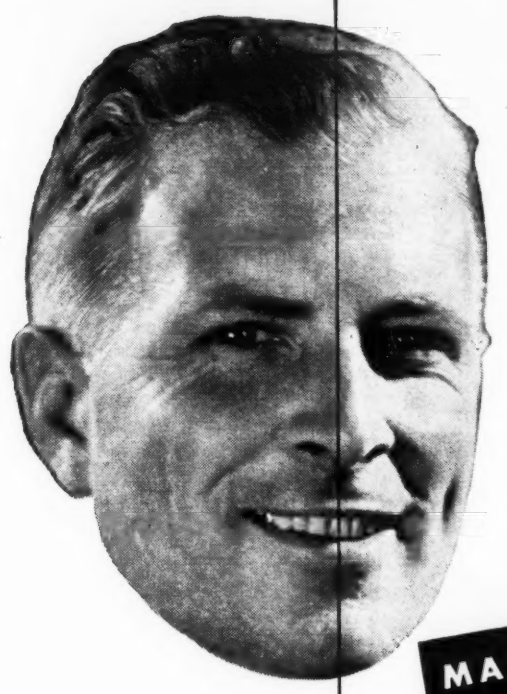
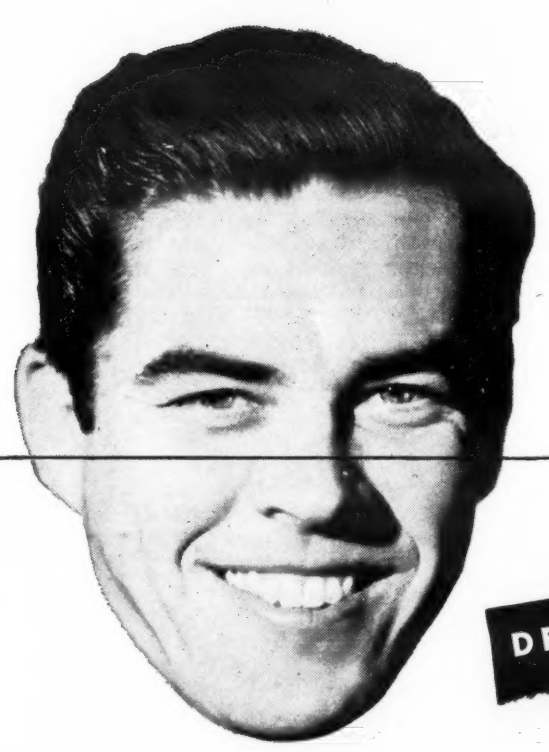


MANUFACTURER

DISTRIBUTOR



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**EACH DEALER GETS:**

1. **Selective coverage of his *local* market**
2. **Prominent display of his name and location**
3. **The low rate of just 2 1/6c a line!**

**YOU GET:**

1. **Better identification of your local outlets**
2. **Enthusiastic dealer support**
3. **Advertising that pays off *right away!***

The Plan gives *every* dealer the benefits of an advertising campaign that reaches prospects in his own area . . . will help you penetrate more deeply the Great Chicago Market, a market so vast that it can take all or the greater part of your production.

Offering the Plan to home appliance manufacturers is another step on the part of the Tribune that will help you to profit by the significant marketing data revealed in the Tribune's Durable Goods Study among consumers and dealers. In this Study, you will find one of the most comprehensive and useful market analyses ever made.

To learn more about the Coöperative Advertising Plan and the Durable Goods Study, get in touch with your nearest Tribune representative, as shown below.

Tribune families tell us that they will spend $263,000,000 for home appliances the first year they are available. This is 63.4% of the total indicated volume in the Great Chicago Market. No other medium covers this staggering potential so effectively. Tribune rates per line per 100,000 circulation are among the lowest in America.

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*the World's Greatest Newspaper*

December average net paid total circulation:
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220 E. 42nd St., New York City 17

Fitzpatrick & Chamberlin,
155 Montgomery St., San Francisco 4

W. E. Bates, Chicago Tribune,
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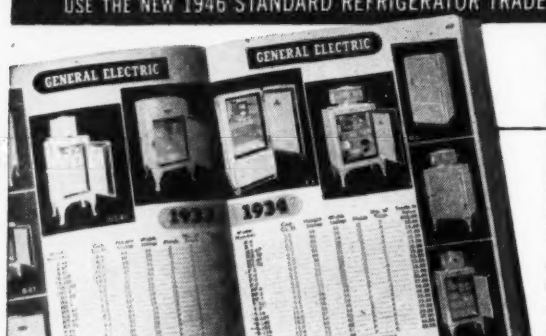
USE THE NEW 1946 STANDARD REFRIGERATOR TRADE-IN MANUAL & DEALER GUIDE

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*Over 900 photographs—over 2900 detailed specifications and authoritative trade-in values given for all key refrigerator models manufactured since 1928.*

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**GENERAL RECORD CO.**
114 N. Hawthorne Blvd.
Hawthorne, Calif.

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Street.....
City.....State.....


## *Bank Display Grosses Dealer $3,500 In Week*

NEWARK, N. J. — Krich-Radisco, Inc., major appliance distributor in New Jersey has again proven the effectiveness of its newest merchandising method which encourages cooperation between its dealers and local banks in arranging and maintaining a display of the dealer's complete line of home appliances in the bank.

The most recent such display was that of Frank's Radio & Electrical Store of South Amboy, N. J., on the banking floor of the South Amboy Trust Co. This display featured the Bendix home laundry, the Norge refrigerator and gas range, the Eureka deluxe upright cleaner, and the American central sink display. A dealer's representative was on duty in the bank at all times with the display.

Success of this method is indicated by the fact that in the first week of this cooperative display, one dealer's salesman wrote sales amounting to $3,500.

### Distributor Adds 4 Salesmen To Cover Southern Territory

ATLANTA — As a means of increasing its sales and service aids to its 450 authorized dealers in Georgia, North and South Carolina, Florida, Alabama, Mississippi, Louisiana, and Arkansas, the W. T. Shackleford Co. here, has added four salesmen to its staff. They include Jim Roberson, Charles Wilson, W. T. Shackleford II, and Charles Shackleford.

# No Longer 'Desperate', Consumers Will Wait For Chosen Brand, Kansas Dealer Finds

## *His New Trade-in Shop to Handle Boxes for Resale*

KANSAS CITY—Ninety per cent of the appliance prospects who have been coming into the store have one specific brand appliance in mind and intend to wait for it, according to a survey made by Walter Drew, head of Drew's Hardware & Home Appliance Store, Kansas City.

Mr. Drew took an unofficial survey after completing an "appliance annex" to his long-established hardware store. The annex, 18 x 12 ft., is separated by an archway from the main floor, with a flight of three steps. Salesmen show prospects floor samples directly behind the window, where every passerby can see what is going on. This idea has built up floor traffic tremendously.

"Where people used to say they were desperate for any kind of appliances, they now intend to wait for one particular brand," Mr. Drew explains. "Our conclusion is that there is still a lot of customer loyalty to well-made brands, and that we will have to emphasize brands heavily in the forthcoming buyer's market."

The Drew concern has taken one farseeing step of much interest to other dealers—establishment of a trade-in store. Taking the long view toward later appliance merchandising, Mr. Drew has converted a former hardware store around the corner from his new location into a trade-in store with facilities for overhauling and reselling all major appliances.

Fundamental equipment for a shop has been set up, and mechanics are being trained. Ability to overhaul refrigerators will permit the store to accept trade-ins in the near future, completely recondition, paint up, and resell the boxes with at least a "break even" profit. Enough space is provided in the trade-in store, which is bright and modern as the main store, for 50 appliances.

Taking his cue from other dealers who found trade-in handling a valuable asset, Mr. Drew will promote them exclusively with classified newspaper advertising which appeals to the bargain hunter or less privileged customer. Also, there will be a separate sales staff.

# *Mass Display of 'Immediate Delivery' Appliances Stops Passing Customers*

ST. LOUIS—"Emphasis today is on immediate delivery of all items," says Fred Meyer, sales manager of Hanenkamp Appliance Co. here. "Therefore a display of such items in the window seemed to be a worthwhile plan to attract attention.

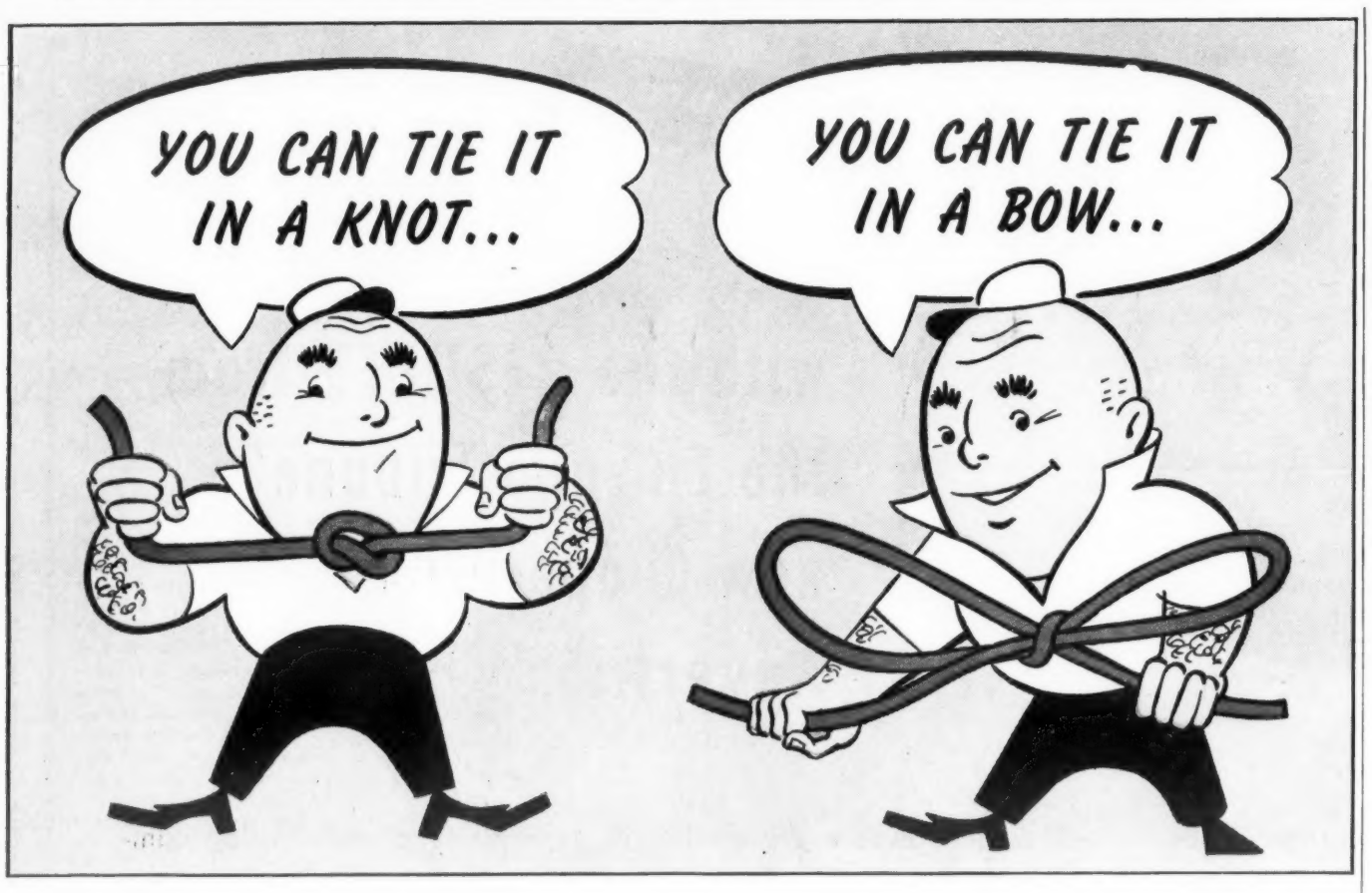
"Six months ago when merchandise in certain lines was again available in limited quantities, we placed a sign in the window of the shop announcing that all merchandise displayed would be delivered at once. This window is constantly changing as shortages occur in some lines and others are available."

Hanenkamp's have concentrated on mass display in the demanded merchandise window. Customers must therefore stop and carefully study the window before all of the stock can be noted. In the center of the window, which now contains such items as, electric stove, electric water heater, room heaters, carpet sweepers, and sun lamps, is a white cardboard sign lettered in black and red.

Customers are stopped by the words, "Everything in this window available now for immediate delivery," on the sign.

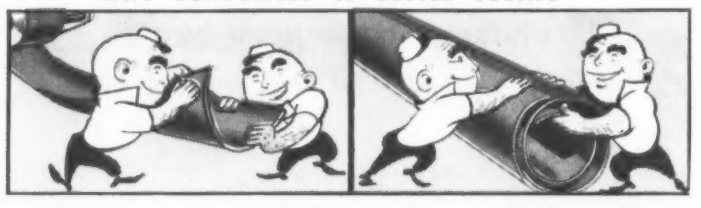
"This sign has proved to be a traffic stopper for our heavily traveled Kingshighway Blvd. location," Mr. Meyer stated. "Though customers may not buy from the items in the window, this system has the advantage of getting them into the store at least to inquire. Many sales of other items have resulted in this manner."

"We have now developed a watchful attitude among customers, keeping an eye on the window for the merchandise they desire," the manager continued. "Customers know that items in the window can be purchased immediately, for it is our policy never to display any items that cannot be produced at once."

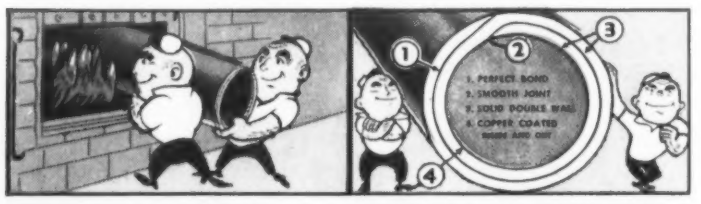

## Bundyweld Steel Tubing Fabricates With Ease

**WHY BUNDYWELD IS BETTER TUBING**



1 Bundyweld Steel Tubing is made by a process entirely different from that used in making other tubing. A single strip of copper-coated S.A.E. 1010 steel is continuously rolled twice laterally . . .

2 . . . into tubular form. Walls of uniform thickness and concentricity are assured by the use of close tolerance cold rolled strip. This double rolled strip passes through a furnace where the . . .




3 . . . copper coating fuses and alloys with the double steel walls. After brazing and cooling, it becomes a solid double wall steel tube, copper brazed throughout 360° of wall contact . . .

4 . . . copper coated inside and out, free from scale, closely held to dimensions. Hard or annealed in standard sizes up to ⅝" O.D. Special sizes cold drawn. Also in Monel, nickel and nickel alloys.

When you rely on Bundyweld Steel Tubing, you realize extra economy.

You save precious time in production, because this modern tubing fabricates with ease. And you gain in dependability, because of the strength imparted by Bundyweld's unique solid, double-wall construction. Bundyweld meets three vital tubing needs:

- **Great Resistance to Vibration Fatigue**
- **High Bursting Point in Pressure Applications**
- **Low Cost**

Every working day, nearly two million feet of Bundyweld Steel Tubing roll out of our plant to become vital parts in motor vehicles, cooling equipment, gas ranges and other items of modern industry.

The chances are good that Bundyweld can help your products, too. Write today. *Bundy Tubing Company, Detroit 14, Michigan.*

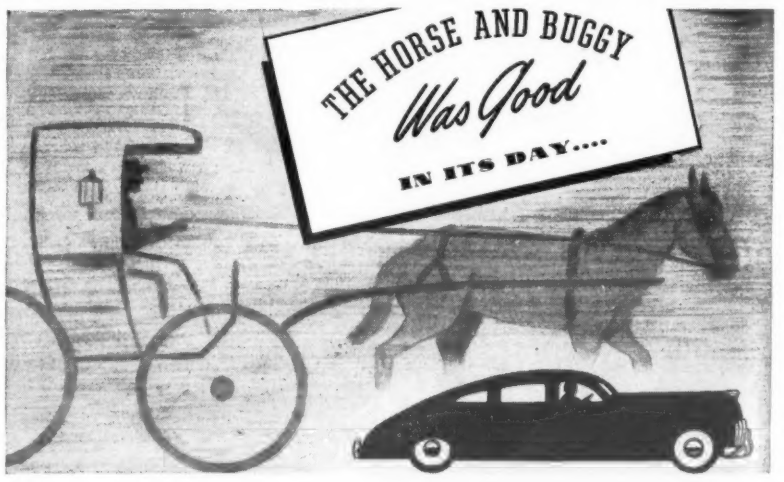
**BUNDY TUBING**

ENGINEERED TO YOUR EXPECTATIONS

BUNDY TUBING DISTRIBUTORS AND REPRESENTATIVES

Pacific Metals Co., Ltd. 3100 19th St. San Francisco 10, Calif.
Standard Tube Sales Corp. 1 Admiral Ave. Maspeth, N.Y.C., N.Y.
Lapham-Hickey Co. 3333 W. 47th Place Chicago 32, Illinois
Rutan & Co. 404 Architects Bldg. Phila. 3, Pa.
Eagle Metals Co. 3628 E. Marginal Way Seattle 4, Wash.
Alloy Metal Sales Ltd. 861 Bay St. Toronto 5, Canada






*BUT...*

Old fashioned methods are costly. That's why it pays to use the best available modern products when preparing metal surfaces for painting.

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**RUST PROOFING AND PAINT BONDING**

*Granodine*
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**RUST REMOVING AND PREVENTING**

*Deoxidine*
*Peroline*

**PICKLING ACID INHIBITORS**

*Rodine*

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—used in power spray washers—produce a uniform, finely textured phosphate coating on steel and iron, transforming the surface of the metal into a non-metallic, non-conductive layer that will take and maintain a beautiful, enduring, lustrous finish.

GRANODINE* & DURIDINE are fast, efficient workers. They reduce production costs, save time, minimize paint outlay.

Both are ready to serve you. Your production problems will determine your choice — and our technical advisers will gladly assist you in your selection

*Trade Mark Reg. U. S. Pat. Off.

**AMERICAN CHEMICAL PAINT CO.**
AMBLER PENNA.

## Here Is the New Deepfreeze Basket

Charlie Cummings, sales manager for R. A. Howe & Co., Deepfreeze distributor in Hawaii, demonstrates the basket provided with the "twin model" Deepfreeze to aid in handling small packages. Three baskets are provided with each of the units.

## Bonus of Free Insurance For All Employes Given By Eastern Contractor

ELMHURST, N. Y.—A unique bonus was granted to employes of Contractors Refrigeration Corp. here in the form of group life insurance ranging from $1,500 to $3,000 and accident, health, and hospitalization insurance, Raymond R. Bennis, president of the firm, and Montgomery B. Hulsapple, vice president, have announced.

The insurance, effective last January, is entirely at company expense, the executives pointed out. The accident, health, and hospitalization insurance covers all members of the employe's family, they said.

In a joint statement, Messrs. Bennis and Hulsapple declared: "Our organization, composed of engineers, draftsmen, clerical aids, and mechanics engaged in the installation of air conditioning and refrigeration is confident of an expanding volume of business as a result of new developments in our field.

"We desire to promote employer-employe relationships, and have chosen this means of indicating those desires as a beginning, with constant thought of other ways and means to further accomplish this result."

The life insurance was written by the Connecticut General Life Insurance Co. The health, accident, and hospitalization insurance was negotiated with the Continental Casualty Co. They were handled by John L. Lamula, insurance broker for Contractors Refrigeration Corp.

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WALK-IN REFRIGERATORS
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## Liquid Carbonic Reports $1,256,926 Net for Year

CHICAGO—A net profit of $1,256,926 for the year ending Sept. 30, 1946, on sales of $23,746,562 for the same period was reported last month by the Liquid Carbonic Corp. here.

P. F. Lavedan, president of the corporation, said that the year's profit, after preferred dividends, equalled $1.38 per share on 728,000 shares of common stock outstanding.

This compared to $1.91 per share on $1,522,585 for the preceding year. Sales for that year amounted to $21,613,837.

Mr. Lavedan announced that Liquid Carbonic had a backlog of unfilled orders in excess of $25,000,000, made up of contracts for ice cream cabinets, soda fountains, luncheonette equipment, and bottling machinery.

He pointed out that the firm expects to complete construction of a new soda fountain and luncheonette equipment factory here in 1947. The new plant will have 320,000 sq. ft. of floor space and will be constructed of steel with glazed tile walls.

He reported that Liquid Carbonic had built a plant for the manufacture of household refrigerators and ice cream cabinets at Morrison, Ill. last year.

## Condensing Unit Standard To Be Effective Feb. 20

WASHINGTON, D. C.—Commercial Standard CS107-45, for commercial electric refrigeration condensing units, becomes effective for new production on Feb. 20, 1947, the National Bureau of Standards, U. S. Department of Commerce, has announced.

F. E. Powell, of the division of trade standards, declared that an industry proposal dated Dec. 13, 1946, to put the standard into effect was approved by the Standing Committee and that he was authorized to issue the announcement.

Originally, the standard was to become effective six months after the official announcement of the cessation of hostilities in World War II, it was said.

## CPA OK's $1,500 Plant

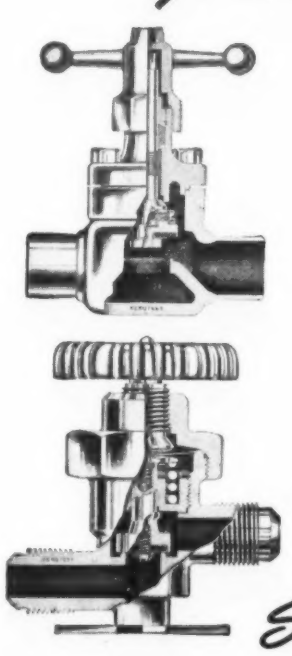
WASHINGTON, D. C.—Construction of a frozen food locker at Gas City, Ind., at a cost of $1,500 has been authorized by the Civilian Production Administration, it was announced here recently.

The Twin City Locker Service was named in government's report as the applicant.

OPPORTUNITY FOR MANUFACTURERS' AGENTS
Expanding program on regular, panel, ceiling and low temperature unit coolers, replacement condensers and allied refrigeration parts requires aggressive, hard hitting manufacturers' agents familiar with commercial refrigeration equipment and parts distribution. Write giving full details of experience and territory covered. E. A. Bonneville, Sales Manager, Refrigeration Division, Fedders-Quigan Corporation, Buffalo 7, N. Y.

PUFFER-HUBBARD GRAND HAVEN MFG. COMPANY MICHIGAN
To Preserve it "PH" it

PUFFER-HUBBARD
ANOTHER CASE OF GOOD REFRIGERATION ENGINEERING
SELF SERVE DAIRY CASE
The Puffer-Hubbard line includes most types of refrigerated cabinets as well as Refrigerated Dairy and Vegetable Cases, Dry Beverage Coolers, Walk-in Coolers and Grad-U-Matic equipped Reach-in Cabinets, each bearing the mark of a good case.
All porcelain interiors and exteriors. Equipped with exclusive patented features and many extra refinements making Puffer-Hubbard today's best buy.
YOUR FOOD SUPPLY
Keep it fresh and attractive (salable) with P-H food preserving refrigeration.
Write for information
PUFFER-HUBBARD MFG. CO.
*The Mark of a Good Case
GRAND HAVEN, MICHIGAN, EST. 1898

Special Ability AT YOUR COMMAND!

ALL these—up-to-date technical knowledge, familiarity with trade problems, trained personnel, ample stocks of Kerotest Valves and Fittings, the "Know-How" to find scarce items, speedy delivery—all these *special abilities* of your Kerotest Wholesaler are *at your command.*
Kerotest Air Conditioning and Refrigeration Valves and Fittings are distributed solely through Kerotest Wholesalers because they have individually demonstrated these special abilities.
For the best in valves and fittings . . . plus the finest in comprehensive service . . . depend on Kerotest and see your Kerotest Wholesaler regularly.
See your KEROTEST Wholesaler
KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.
AMERICA'S FIRST NAME IN QUALITY VALVES

SPECIFY...
DRYERS THAT BEAR THIS LABEL
CHARGED DAVISON'S IN SILICA GEL OUT WITH
—the label that is your guarantee of maximum performance and satisfaction. Your jobber stocks it—for refilling and in factory charged dryers.

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Your letterhead will bring our latest catalog—also our House Organ.
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REFRIGERATION ACCESSORIES
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• Oil Separators.
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• Equalizer Tanks.
• Carbonators and Cooler-Carbonators.
• Accumulator Heat Exchangers.
• Instantaneous Draft Beer Coolers.
• X-Ray Refrigerating Units.
• Self-contained, Cabinet type Drinking Water Coolers.
TEMPRITE PRODUCTS CORP.
47 PIQUETTE AVENUE DETROIT 2, MICHIGAN

# Research Is Showing Food Field Benefits Of Protective Refrigeration for Perishables

CLEVELAND—All factors in the food business are becoming increasingly aware of the benefits of continuous refrigeration for all perishable products—even canned goods.

So H. C. Diehl, director and secretary of The Refrigeration Research Foundation, Inc., noted in his report presented at the Foundation's annual meeting here Jan. 14. The Foundation is a research organization for the refrigerated warehousing industry.

"Industrial engineering is gradually showing us that protective refrigeration is more widely applicable than we had ever imagined possible," Mr. Diehl said, "and there is a definite movement toward adequate and continuous refrigeration for many perishables, from production to final stages of utilization.

"Growers, shippers, processors, transportation companies, storages, wholesalers, retailers (and consumers, too) are becoming more aware than ever of advantages to be gained from continuous control of temperatures and humidity for all products that are perishable—even those that deteriorate slowly, such as canned goods."

He pointed out that "a very large field for refrigeration research lies in that 'in between' region—between cool storage and unrefrigerated storage—that is, among those numerous products that now are handled largely without cold storage but would be appreciably better if handled under refrigeration."

"At the beginning of 1946," Mr. Diehl stated, "a number of the major projects had been in operation 12 to 18 months. During the year the reports from these projects, as well as from some more recently begun, have revealed an increasing accumulation of results."

Here are some of the results he reported.

"At Iowa State College, the project on changes that occur in frozen eviscerated poultry under different refrigerated storage temperatures has now established the time and extent of those changes with marked definiteness for fryers and roasters. . . .

". . . Progress reports from storage studies on frozen pork at Kansas State College are adding to our knowledge of the rate and nature of changes that develop under varying conditions of temperature and product.

"From a companion project at the same college we are learning how to handle frozen meat after removal from frozen storage, and there also we have recently begun work on the behavior of precooked frozen meat in different refrigerated storage environments. . . .

"From the project on frozen eggs at Ohio State University, the Foundation has now obtained data on rates of freezing . . . as affected by size of container, temperature, and air movement in freezing, position of lids of containers (whether on or off), and nature of product (whether whole mixed egg or separated yolks and whites).

"Along with data and graphs describing these factors in egg freezing, the project is yielding important information on the quality of broken-out eggs preserved by freezing, as revealed by bacteriological studies. . . .

"The recently begun project on frozen cooked foods at the Massachusetts Institute of Technology has shown, beyond any doubt, that sanitary history of these products is presently, in many cases, not what it should be and that bacteriological control in the manufacturing process can be the means of assuring safe, high-quality products.

"This study is a fundamental prerequisite to progress in this potentially important phase of the frozen foods industry, in which volume of output may soon be very large. Now that we have established an essential guidepost, we hope, with increasing cooperation from the frozen foods industry, to help uncover all the essential technical facts for this comparatively new type of frozen food.

"The studies on frozen pack juices and concentrates at the University of California in Berkeley, has consisted of a broad survey of possibilities for such products among fruits and vegetables and blends. . . . Comparisons were made with canned products and it was found that freezing and freezing storage are capable of making a wide variety of products available, most of which are not now commercially produced simply because the frozen food industry has not had time to consider their development.

"A separate study on the storage of frozen orange juice has been completed and is ready for publication.

"In Louisiana State University, the project on frozen shrimp has covered rates and nature of spoilage from the fisherman's trawler through freezing storage of fresh and processed product. In general these studies have shown the need for immediate and continued refrigeration from the time the shrimp are caught. . . .

"In a group of projects related to the use of cooler storage space, the general aim has been the modification and cleansing of storage atmospheres. . . .

"At Rhode Island State College the use of carbon dioxide gas, which can be economically supplied by distributions of chunks of 'dry ice' throughout the sealed room, has proved very promising as a means of controlling apple scald . . . the project is now moving toward details of management that can be used in the first commercial trials, tentatively planned for the coming storage season.

"A method for the destruction of rodents with carbon dioxide has been developed and recommended for commercial use.

"At Cornell University the use of activated carbon to remove odors and volatiles from stored products and from other sources has been under investigation. These studies have revealed the essential need for thorough and controlled circulation of air in a room, especially when diffusers are employed, as a means of bringing all the air to the adsorbing material. . . .

"Two studies related chiefly to vitamin C, or ascorbic acid, as affected by storage, have received aid. . . ."

"Studies at Michigan State College on sanitization of cold storage rooms have enlarged our practical knowledge of the effectiveness of various compounds and methods presently at our disposal. At Oregon State College a study of bacteriostats . . . in relation to refrigeration is well under way. . . .

"The investigation of means of measuring and controlling humidity at subfreezing temperatures is getting under way (at Northwestern University), although equipment problems have delayed it somewhat. Similarly, work on humidity at above-freezing temperatures at Michigan State College has required extension. . . ."

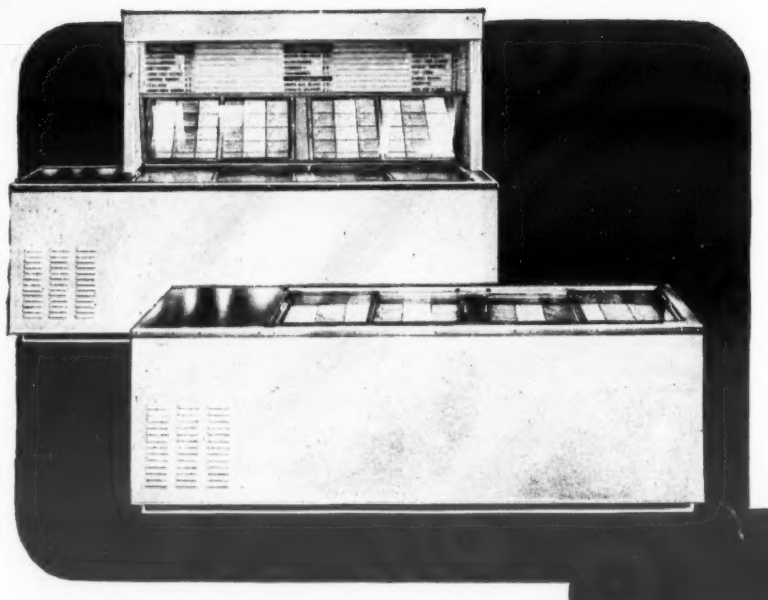
Surveys at MIT of possible new uses for refrigerated storage for commodities of all kinds make up one of the two projects established in 1946, Mr. Diehl said. The other involves an investigation at the Georgia Agricultural Experiment Station of the effect of refrigeration on peanuts and peanut products.

Regional training conferences, initiated at Hershey, Pa., will be continued with meetings at Kansas City Feb. 6-9, at French Lick, Ind., Feb. 16-19, and at San Jose, Calif., March 12-15.

Mr. Diehl reported that during the year, 28 companies applied for sustaining membership and seven for associate membership, with several additional applications made since the first of this year. Sustaining members base their eligibility and contributions on their refrigerated storage space, while associate members are not engaged in warehousing but are concerned with refrigeration.

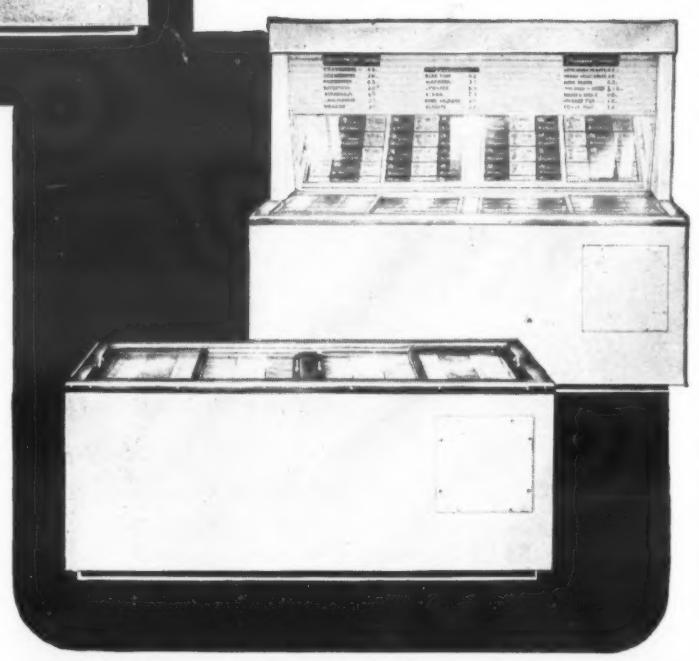
The Foundation was established in 1943. Solution of technical problems in commodity refrigeration, extension of uses for refrigeration and refrigerated warehousing, and training of personnel are among objectives.

FLEISCHMAN
FROZEN FOOD DISPLAY CABINETS



• All steel welded construction
• Hydroleened Insulation
• 4 Easy sliding glass doors
• 20 Cubic feet

Model 520A self contained with, without superstructure



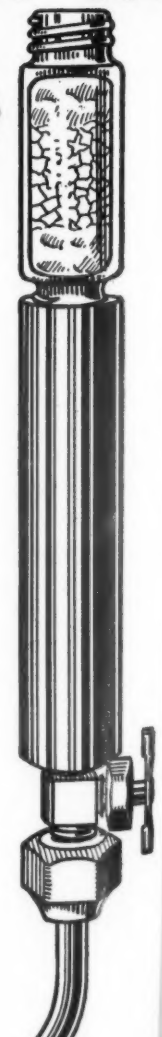
• Smartly styled
• Economical to operate
• Immediate delivery

Franchises in Several Territories Still Available

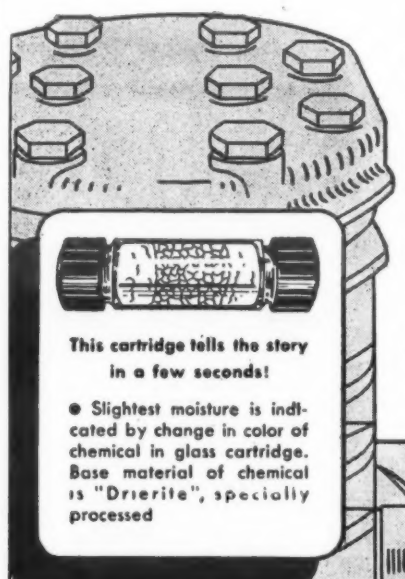
Model 520 remote cabinet, with, without superstructure

Fleischman Freezer Co.
275 East 140th Street Bronx 51, N.Y.

Long needed... HERE IT IS!
DFN MOISTURE INDICATOR*
Quick . . . simple . . . low cost method of detecting moisture in Freon and Methyl Chloride Systems



LABORATORY ACCURACY ON THE JOB!



This cartridge tells the story in a few seconds!
• Slightest moisture is indicated by change in color of chemical in glass cartridge. Base material of chemical is "Drierite", specially processed

THE new DFN Moisture Indicator tells instantly whether system is wet or dry. No need to shut down unit. Avoids moisture troubles in new installations; big time-saver diagnosing service failures in old systems. Demonstrated with great success to thousands at the All-Industry Show. Easily-assembled parts and cartridges packed in handy service kit. Ask your jobber—or write us for literature and prices.

* PAT. APPL'D FOR

McINTIRE CONNECTOR CO.
Makers of DFN Dehydrators, Filters, Strainers
265 Jefferson St. Newark 5, N. J.

## Dover Formally Denies Carrier Corp. Charge That Compressor Was Imitated

NEWARK, N. J.—Formal denial of allegations by the Carrier Corp. that the Dover Compressor & Machine Co. has imitated its compressor by fraudulently procuring confidential and secret information from former or present employes of Carrier has been filed by Dover in the U. S. District Court here.

Carrier filed a complaint against Dover last month making the above allegations and seeking an injunction against further production or sale of such compressor and damages for losses allegedly sustained.

In its answer to the complaint, Dover denied that it imitated Carrier's compressor.

Dover declared, "The name 'Dover compressor' is cast in metal on each of defendant's compressors in a prominent place in easily readable letters. Defendant's compressor is different from plaintiff's compressor in shape, color, and packaging; and it is different from plaintiff's compressor in materials, design, accuracy, tolerance of its manufacture, and performance.

"Defendant has at no time represented its compressor as being a 'Carrier,' nor has it at any time attempted to or intended to 'palm off upon and mislead the trade and the public.'

"Defendant's compressor was designed, engineered, and produced by its own officers, engineers, and employes, none of whom was ever employed by plaintiff. Defendant has not obtained any confidential or secret information from any present or former employe of plaintiff or otherwise."

## *Central Service Supply Moves to New Site April 1*

SYRACUSE, N. Y.—Central Service Supply Syracuse Corp. will move into a brick and concrete fireproof building containing 13,000 sq. ft. of floor space and located right in the heart of Syracuse on or about April 1, Theodore I. Glou, president of the firm, has announced.

New address of the company will be 645-647 So. Warren St.

## *Ending of Discount for Prompt Payments Seen*

NEW YORK CITY—General Electric Supply Corp. is among the companies which have either reduced or eliminated discounts to retailers for prompt payment for merchandise received, the *Wall St. Journal* reports.

It was also revealed by the publication that some retailers are "striking" against one big manufacturer who has discontinued discounts. The retailers contend that the loss of the rebate constitutes a "hidden price increase." In the past it has been customary to deduct 2 to 3% for bills payed within a specified time.

## Reach-Ins, 3 Walk-Ins on Sale at WAA In Seattle

SEATTLE—A used reach-in refrigerator and three walk-in refrigerators are now being offered for sale by the War Assets Administration regional office here.

All bids for the units must be in by Feb. 14.

The reach-in is described as a 43-cu. ft. capacity unit with a show case style glass front.

The walk-ins are said to be Hussmann units of 620-cu. ft. capacity. They measure 12 ft. 10 in. by 9 ft. by 7 ft. 6 in.

## Bradshaw Occupies New Building Following Fire

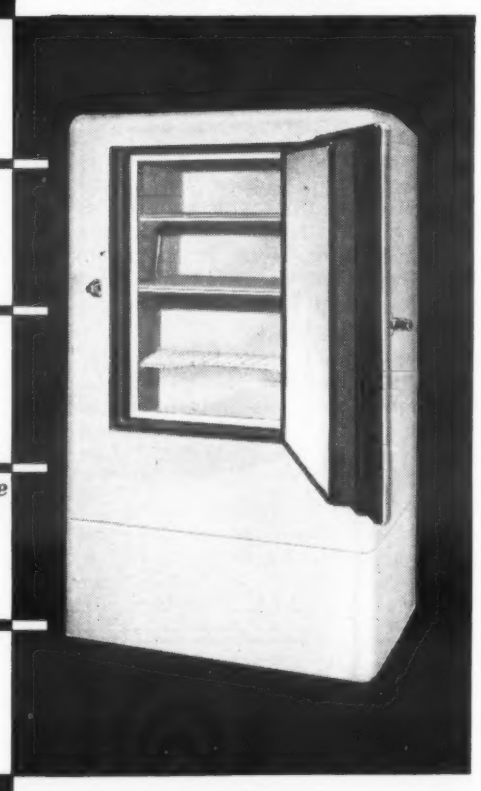
FRESNO, Calif.—To celebrate the re-opening of its new building at 420 Broadway here, the W. C. Bradshaw Co., York Corp. distributor, held an open house the afternoon of Jan. 29 followed by a dinner at the Californian hotel to outline its program for the coming year and review its achievements of the past five years.

Rebuilding of the company's facilities was necessitated by a fire in July of last year which completely ruined the structure. Since then the firm had been operating from six different locations here, explains W. C. Bradshaw, head of the firm.

In addition to employes, members of the company's dealer organization, representatives of York Corp., suppliers, representatives of the press attended the open house and dinner.


BENBAR

*The* VERTICAL FOOD FREEZER *with shelves*



*14 cubic feet of space holds 500 to 700 lbs. of food*

*made in two sections for easy handling*

*steel construction*

*4" fiberglass insulation*

*three step door construction*

*two cold plate shelves & large backplate for quick freezing*

*adjustable wire shelf*

*deep well for bulky foods*

THE PREFERRED TYPE FREEZER *some dealerships are still available*

*manufactured by*
BEN BAR *sales, inc.*
*1025 n. 3rd st., milwaukee 3, wis.*

# SURPLUS SALE

**We offer in whole or in part approximately five carloads of**

# Refrigeration Equipment

**consisting of thousands of individual items . . too numerous to list separately.**

***This inventory consists in part:—***

## Beverage cooler sliding covers

**all of ply-metal construction as manufactured by the Haskelite Corporation, Grand Rapids, Michigan.**

**These covers are made of HEAVY GAUGE METAL OVER 5/8 inch waterproofed plywood core. Approximately 80% are STAINLESS STEEL the balance PRIME GALVANEAL, for baked enamel finish.**

**SPECIFICATIONS: All cover widths as follows: Lower sliding cover 22 3/32" wide. Upper cover 23 11/32" wide. All are matched sets . . . estimating 2 sliding covers per beverage cooler. Quantities as follows:**

**covers for 45" long coolers . . . . . 345 sets**
**60" " " . . . . . 675 sets**
**75" " " . . . . . 1025 sets**

## All Covers Have Recessed Door Handles

**Inventory includes sufficient flat wire racks and sliding shelves of all-welded construction as manufactured by the UNITED STEEL AND WIRE CO., BATTLE CREEK, MICHIGAN, to equip approximately 2000 beverage coolers.**

**Other component parts such as shelf brackets, stainless steel door sills, coil hangers, Phillips screws, lag bolts, brass fittings, etc., included.**

## PENN CONTROLS

***Inventory includes component refrigeration controls as manufactured by the PENN ELECTRIC SWITCH CO. of GOSHEN, INDIANA, consisting of about:***

**1800 COLD CONTROLS, THERMOSTATIC SWITCHES, DUAL TEMP. CONTROLS, ETC., all parts new and in original cartons.**

**1200 Detroit Lubricator Co. Expansion valves. ½ to 3 Ton capacity.**

**900 Bronze Body Type 242A Penn water valves for water-cooled condensing units.**

**50 Magnetic motor starters up to 3 HP rating with thermostatic switches built-in.**

**1000 2-Pass Air-cooled condensers for ¼ HP machine.**

**100 Milk coolers, aerator type, as mfgd. by CHERRY-BURRELL CORP. and McHALE MFG. CO. Complete with tinned copper and stainless steel tanks.**

**150 Counter-flow water cooled CONDENSER COILS for 1 HP condensing units in original shipping cases of the WOLVERINE TUBE CO.**

**5 TONS of PULLEY BLANK CASTINGS can be converted into 3 to 5 inch V BELT PULLEYS.**

**Approximately 6000 heavily tinned and lacquered flat wire shelves suitable for use in reach-in commercial refrigerators.**

***This equipment*** **has been acquired from one of the world's largest manufacturers of refrigeration equipment. Due to model changes we were able to purchase their entire surplus inventory.**

**All this surplus merchandise is attractively priced.**

**ALL MERCHANDISE SUBJECT TO PRIOR SALE.**

***WRITE, WIRE OR PHONE***

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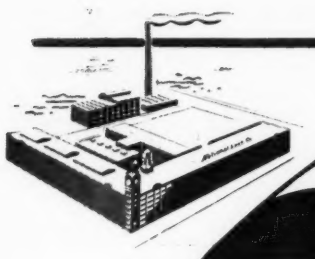
**Phone Broadway 6376 Broadway 2166 Broadway 0821 Broadway 7492**

*Headquarters*

**REFRIGERATOR HARDWARE**
**for domestic, commercial and low temperature cabinets**



SURFACE TYPE HARDWARE
"THRU THE DOOR" HARDWARE
EDGE MOUNTED HARDWARE
PLASTICS
DIE CASTING

NATIONAL LOCK COMPANY
*Refrigerator Hardware Division*
ROCKFORD, ILLINOIS

# INSIDE DOPE

*by* GEORGE F. TAUBENECK

*(Continued from Page 1, Column 1)*

of suggestions which, if accepted and acted upon, would play their part in bringing about a more harmonious relationship and a better understanding between the workers, their employers, and the general public.

"My 27 years in the labor movement fully convinces me that unions—and I mean only good unions—are an integral part of our American way of life. Without good unions, many workers would be sent reeling back into the days of the Simon Legrees of industry, when the individual worker was in all ways bound to do the bidding of a ruthless industrial master. Times when 16 hours of sweaty toil per day for a livelihood, uttrely mean in itself, was the rule, and when even little children, by a cruel extension of this same despicable practice, were compelled to work from dawn to dusk with never an opportunity to enjoy the inherent rights of every American.

"Indeed, without unionism, it would not be long before the sweatshop, with all of its dastardly and inhumane conditions, would be back in our midst; and it would not be long, either, before wages would be back down to a starvation level. Proof of this deduction may be found in the files of newspapers bearing the dates of 1933-34-35—during the true depth of the Depression. In the columns of those newspapers are plenty of items—many of these illustrated by photographs from various parts of the country—which bear telling witness to the fact of anxious workers being auctioned off like slaves at the high bid of 20 cents an hour. And there are other items on file to record the miserable fact that men were discharged through the front door only to be re-hired at the back door of the same shop at half the usual wage. These conditions no decent American desires to see return.

"The spirit of Simon Legree was not altogether dead in the 30's. Nor is there reason to suppose that his spirit is any more dead today.

"This being true, it is obvious that good unions are very much needed to protect, not only the working man, but also the honest employer against his chiseling racketeer competitor.

"It is no longer a question of "Unions to be or not to be." That matter has been definitely settled. It is now simply a question of "Unions, good or bad."

"Well, I for one, see no reason why we cannot insist upon good unions—particularly since these are possible, provided only we think clearly and act with wisdom and common sense.

---

## *Man's Inhumanity to Man*

"Every thinking person is deeply concerned about the present labor-management conflict. Numerous cure-all suggestions are constantly being offered. Outstanding among these is: "Outlaw all strikes, and you have the answer!"

"Such a glib suggestion, when offered as a cure-all is fantastic—outrageous, even, in this Republic which was itself first cast in the American mind in the form of a strike against oppression. Consider the rebellion against acts of the British Crown which led to the Boston Tea Party. . . . No, never popular will be laws which force free men into slavery!

"There is, in fact, no single answer to the labor problem, and for the very simple reason that there is no single cause. The causes of present friction are numerous. Looming large among these is man's inhumanity to man, man's departure from the teachings of Christ. When the industrial Simon Legree held the whip, he lashed the worker in a manner most ungodly, and now that the whip has changed hands, and it is the labor leader—in many cases as unscruplous as Legree—who wields the lash, the blows which fall are still no less ungodly. Never shall we find peace among ourselves until workers and their employers stumble upon the obvious fact that they are not natural enemies but are, instead, full partners in a common cause: production.

"One of the chief causes of labor trouble may be charged directly to the method employed in our industrial relations system—our procedure in the handling of labor disputes. Unless and until we face the fact that changes must be made in keeping with the times, we are bound to have labor trouble and all of its repercussions. In other words, our industrial relations procedure is mainly responsible for the present state of the unions—in truth, a hell of a state!—and simply because this system was put into effect during a period of blind hatred.

"The system I refer to originated through the National Labor Relations Act, more commonly known as the Wagner Act, and to some idealistic nitwits as the Magna Charta of Labor.

"This law was enacted during the worst of the Depression—a period of great confusion. Examination of this law reveals that the authors themselves were confused. The language of the Labor Act is so muddled that the clearest thinkers cannot interpret it. There is the preamble, stating that here is a law designed to diminish causes of labor disputes such as burden or obstruct interstate or foreign commerce—and yet nowhere does this law set up provisions to protect two-thirds of the intergral participants in commerce: namely, the employer and the public. No wonder the present labor act promotes disharmony! For, in effect it protects only the unions and their leaders.

---

## *Streamline Slavery—1947 Model*

"In some sections—particularly in 7 and 8—no real thought is given to the welfare of even the workers. Only the leaders are considered here, since in these sections it is found that compulsory unionism is condoned, compulsory unionism being but another term for streamline slavery, 1947 model.

"In section 7 the worker is told that, through the passage of this law, he has a right to join a union of his OWN choosing—which, to my way of thinking, means that he has the right to join or refuse to join a particular union. And yet, almost immediately following, in paragraph 3 of Section 8, he is told that nothing shall preclude an employer from making an agrement with a labor organization whereby one of the conditions of employment shall be membership in that union. In short, the worker is free in Section 7, only to become a slave in Section 8; since, unless he does join the union in possession of the contract with the employer, he is deprived of the very job which yields him a living. Upon being deprived of his right to earn a living through the instrumentality of a legalized closed shop, what becomes of a man's stated right to join a union of his OWN choosing?

"Other sections of this labor act make of the employer a criminal in the simple exercise of his natural prerogative of free speech since there are specific stipulations which subject to fine and imprisonment any employer who so much as speaks to an employe on the subject of unionism.

---

## *Chiselers Will Always Chisel*

"If you believe these statements of mine to be exaggerated, it might be a good idea for you to read the actual text of the National Labor Relations Act. Once through with

*(Concluded on Page 11, Column 1)*

**JORDON** *again* **SETS THE PACE IN FABRICATION AND STYLING**

**SELF-CONTAINED NORMAL AND LOW TEMPERATURE REACH-IN REFRIGERATORS**

Single and Two Temperature Models . . . available with ICE MAKERS, MEAT HOOKS, in Capacities of 23 to 60 cu. ft.

**DISPLAY CASES**

Double-Duty, Thermopane Glass Sealed Display Front.

WITH THE BEAUTY AND DURABILITY OF **STAINLESS STEEL**

*—and the operating efficiency of*

**"CLIMATIC CONDITIONING"**

*Sell Every Prospect With This*
**COMPLETE, MATCHING LINE**

Display Cases. Self-Service Frozen Food cases—with and without illuminated super-structure. Reach-ins in a variety of styles. Home and Farm Freezers. Beverage coolers.

Typical JORDON quality down to the last detail—inside and out. Built in a plant long experienced in stainless steel fabrication and with almost a half-century of specialization in refrigerator design. JORDON exclusive *"Climatic Conditioning"* for better food preservation under all climatic conditions, gives these cabinets the plus-qualities that build permanent good-will for JORDON Dealers. *Immediate Delivery!*

**A STRONG NATIONAL ORGANIZATION**

JORDON Refrigerators are sold nationally by responsible Distributors and Dealers and are backed by liberal promotion to consumers in all fields.

Dealer inquiries are invited from territories not now represented.

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AMERICA'S MODERN COMMERCIAL LINE

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*Sales Division*
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**AS-IS AND REBUILT REFRIGERATORS**
**FOR SALE**
**A.C. or D.C.**
Large Quantities In Stock
Available for Immediate Delivery
*Write today for details*
**S. J. O'BRIEN SALES CORP.**
Established 1910
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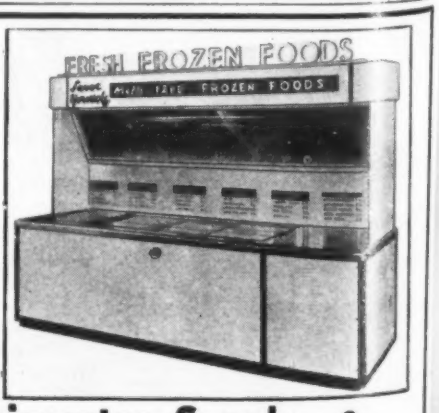
**AVAILABLE FOR DELIVERY:**
*⅓-½-¾ Condensing Units*
*Priced Right on*
*Large Quantity Sales*
**Manbrook Refrigerator Co., Inc.**
**265 Greene Ave. Brooklyn 5, N.Y.**

**PINOCCHIO FREEZERS**

Pinocchio Lock and Hinge models in 10-15-20-30 and 40 cubic foot capacities, also glass tops in 15-20 and 30 Cu. Ft. Self-Contained and Remote—with and without Canopies. Immediate Delivery—Write for Prices.

Glass Top Model→




• **Complete Refrigerator Supply** •
**92 - 7th Ave., New York 11, N. Y.**

# INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 10, Column 5)

the job, you will, I am certain, agree that it is the most lopsided piece of legislation ever put over on the American worker, the employer, and the public. This labor act, you will find, fails to establish standards as to what constitutes legitimate unions or legitimate employers. It will also be clear to you that, under this law, chiselers are favored above ethical men—since chiselers have always been able to chop legalistic language to fit their chiseling intentions.

"In the light of the foregoing, I do not hesitate in saying that, when the doors of the new Congress are opened, it would be a job well done were most of this act to be tossed straight through the window, and were a number of thorough-going amendments to be made in the interest of common equity and sound Americanism. If we are to have equity in the matter of industrial relations, the law must give full consideration to the three integral elements of industry: the worker, the employers, and the general public.

"It must, however, be borne in mind that such consideration cannot be realized in an atmosphere of mob hysteria or promoted by hearts of vengeance influenced by the haters of either side of industry. The matter must be calmly and fairly approached. Were I to be offered my say on this most important issue, I should, with full deliberation, make the following recommendations to the new Congress:

## *Recommendations to Congress*

"1. That the name of the labor act be changed from the National Labor Relations Act to the Industrial Relations Act. This title, unlike the present one, is unbiased in its address. It indicates that the law is not set up to favor labor alone, but that it is prepared to recognize, with fairness to all, the three vital components of industry: workers, employers, public.

"2. That this Industrial Relations Act create an Industrial Relations Department of Government, one which would be unbiased in its outlook, and whose function it would be to coordinate the services of the departments of Labor, Agriculture, and Commerce; this new department to be headed by a Director of Industrial Relations, an official under no special allegiance to any of the groups otherwise already fully represented.

"3. That this Industrial Relations Act create an Industrial Relations Court. It would be the duty of this court to try all contractual dispute cases that could not be settled through conciliation, mediation or arbitration—the decision of this court to be prompt and binding. There would be no allowance for a strike for the duration of any labor-management contract since this court would have full power to act on all side issues, including jurisdictional disputes, and thus avoid unnecessary cessation of production.

"4. That this Industrial Relations Act stipulate that only citizens of the United States or its possessions would be eligible to negotiate any matter pertaining to industrial relations.

"5. That labor unions, as well as employers, be required to render financial statements at yearly intervals at least, such statements to be attested to by certified public accountants.

"6. That labor unions be required to observe the rules of strict parliamentary law at all meetings, and that they be also required to elect officers and conduct strike votes by secret ballot.

## *There Is Hope for the Union Movement*

"To hear some people talk, one is led to believe that the union situation is hopeless. Well, with these people I simply cannot agree, convinced as I am that if proper steps are taken, we can and will find the answer to the present vicious problem. Some people are saying that the entire labor movement has gone Communist, or that it is headed by a bunch of racketeers. Fortunately, however—these are not the facts. The truth of the matter is that the rank and file of workers, whether belonging to the American Federation of Labor, the Congress of Industrial Organizations, the railroad brotherhoods, the independent labor unions—or to no union at all—are, by vitrue of the very fact that they have chosen to work for a living, good honest people, able and willing to do the honorable thing when they know it to be the honorable thing to do.

"And, by the same token, the leaders, by and large, are likewise honest men, since it must be remembered too that the vast majority of them have come up from the ranks of the workers. This being the case, their misdoings can be charged to the head more than to the heart. It can never, therefore, be a simple matter of 'knock 'em and drag 'em out!' Nor should legislation be enacted which will penalize the majority for the acts of a very, very small minority.

## *Give the Unions Back To the Workers*

"No doubt, we do need corrective legislation designed to drive the racketeers and radicals from our unions, but there is no need to pile good unionism on the same wagon with the bad. The type of legislation needed is that which will give the unions back to the workers and which will enable them to operate in accordance with the true principles of unionism—which, of necessity, must be in complete harmony with the true principles of Americanism. When suggestions, such as have been outlined in this article, are placed squarely before the rank and file for consideration, so that they may analyze them according to parliamentary procedure and vote upon them by means of the secret ballot, it will, I am confident, be proven beyond all shadow of doubt that the vast majority of all union members detest the actions of the racketeers and radicals as intensely as do all other decent citizens. Also that labor will be the first to approve such corrective legislation as will make for better times all around.

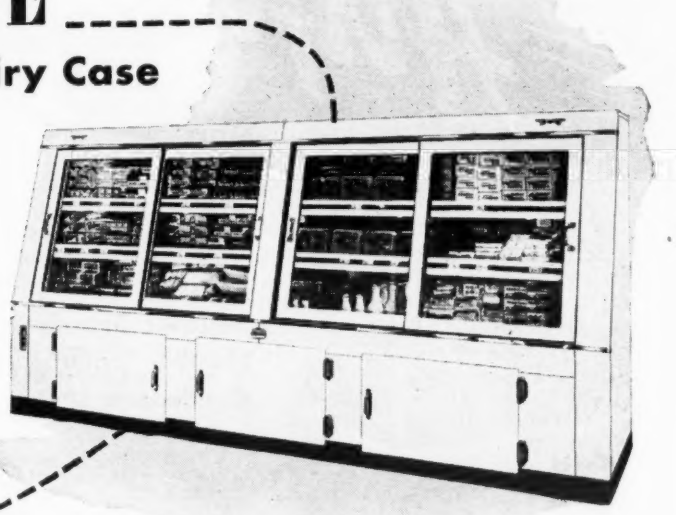
"When this point is reached, no one will have need to fear unionism, because everyone will then be proud of the actual STATE OF THE UNIONS."

MAURICE R. FRANKS, Editor
The Railroad Workers Journal
Official Organ
Railroad Yardmasters of
North America, Inc.


SELF-SERVICE
with the Sherer Dairy Case

One member of a complete quality line . . . designed to be salable in volume at a profit.

Sherer's Self-Serve Dairy Case offers merchants efficiency and dependability . . . triples display area . . . generous refrigerated storage space.. It boosts sales and profits for them.



SHERER
COMMERCIAL REFRIGERATORS
SHERER-GILLETT CO., Marshall, Michigan

VEGETAIRES • DAIRY CASES • REACH-IN REFRIGERATORS • WALK-IN COOLING ROOMS • MEAT & DELICATESSEN DISPLAY CASES •



MARVEL Quick Freeze Storage Locker

INSULATION: 5 inches thick
CAPACITY: 12 cubic feet
SIZE: 72 inches long, 30 inches wide, 34 inches high
COMPRESSOR: ¼ Horsepower heavy duty motor
RANGE: From 15° below zero to 3° above zero

De Luxe model shown is stainless steel throughout. Other models have stainless steel tops with baked on white enamel or polished aluminum sides. Smooth inside surface for easy brushing off of frost. Large lid—23 x 45. Toe space.

DEALERS WANTED

W. ALLEN ROGERS Industries
P. O. BOX 272-AC DEMOPOLIS, ALA.

Wherever heat is on the move, you'll usually find it traveling on aluminum. And traveling fast! That's why refrigeration and heating engineers like to get Alcoa Aluminum into their designs.

And production men like Alcoa Aluminum for other reasons. It's easy to fabricate. Comes in every commercial form. Is readily joined by welding or economical furnace brazing. Never rusts. Is safe to use in equipment that comes in contact with food. Whether you are interested in putting heat in, or taking it out, Alcoa Aluminum is the metal for the job. Alcoa engineers will be glad to help you solve your design and fabrication problems.

ALUMINUM COMPANY OF AMERICA, 1975 Gulf Building, Pittsburgh 19, Penna. Sales offices in leading cities.

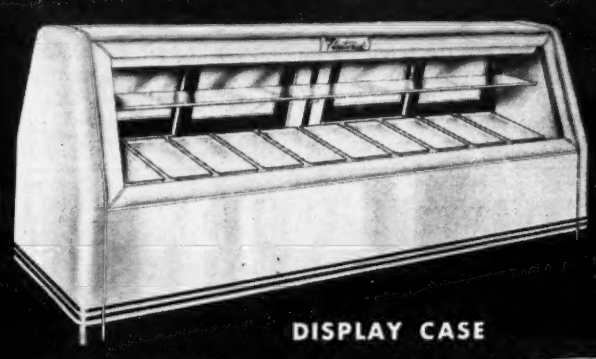
MORE people want MORE aluminum for MORE uses than ever

ALCOA FIRST IN ALUMINUM

IN EVERY COMMERCIAL FORM

Two Outstanding Names in Refrigeration

Fleetwood-Airflow



DISPLAY CASE

WALK-IN COOLER

Fleetwood
Refrigerated Display Cases.
Reach-In Refrigerators.
Flexible Tubing.
Condensing Units.

Airflow
Sectional Walk-In Coolers.
High Market Walk-Ins . . .
Plain Storage Walk-Ins.
Beverage Coolers.
Electric Beer Systems.

Fleetwood-Airflow INC. WILKES-BARRE, PA.

CUSTOM-BUILT EQUIPMENT THAT SETS THE NATION'S STANDARDS

THE MASTER SERVICE MANUALS - - -

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT

DRAFT-MASTER BRINGS TO YOU

CHAMPIONS IN SELLING ABILITY

SETTING THE PACE IN CUSTOMER ACCEPTANCE AND DEMAND

BEVERAGE COOLERS

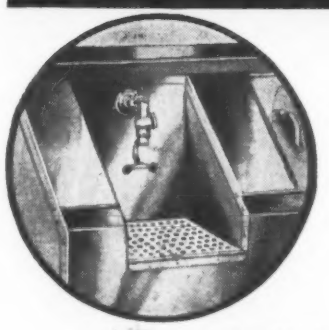
Stainless Steel EXTERIOR

Aluminum INTERIOR

SIZE
39 inches high
28 inches wide
4, 6, or 8 feet long

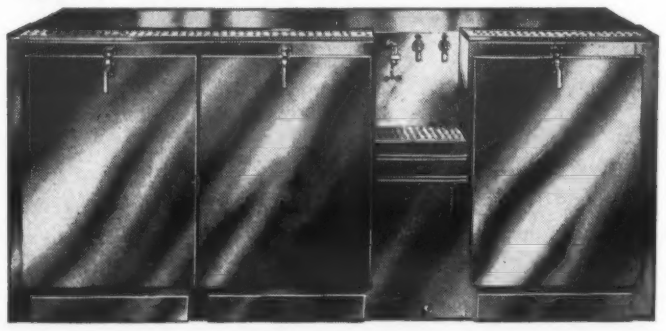
CAPACITY (12 ounce bottles)
4-foot 15 cases
6-foot 25 cases
8-foot 36 cases

*Larger Coolers Available*
*Write for Particulars*



All models available with built-in Glass Filler and Water Cooler as shown in circle, at slight extra cost.

DRAFT-MASTER BEER DISPENSING SYSTEM
GETS THE NOD OF EXPERTS



Junior Under Bar
Draft Beer Dispensing System
Aluminum Interior and Exterior
2 - 3 and 4 Keg Capacity
Instantaneous Cooling
Designed to handle up to 25 half barrels per week.
Larger Systems Available
Write for Particulars

Combination DRAIN BOARDS and COCKTAIL UNITS – WALK-IN COOLERS, All Sizes
DISPENSERS, All Sizes – COMPLETE TAVERN EQUIPMENT

¼ and ⅓ H.P. Complete Condensing Units Available in Good Quantities. Write, Wire or Telephone

Territories Open
Dealerships with Exclusive Franchise

DESIGNERS
DRAFT-MASTER REFRIGERATION, Inc.
MANUFACTURERS

*Life-Time Equipment — The Finest Your Money Can Buy*

1703-5 W. BALTIMORE STREET Gilmor 2185 EDmondson 4542 BALTIMORE 23, MARYLAND


## Frostair Display Gives Clue to Future

**One of the first showings of the new Frostair combination refrigerator and frozen food locker was held at the Housewares Exhibition sponsored by the J. L. Hudson Co. of Detroit recently. The display at right gives a clue to the merchandising technique to be followed by the manufacturer.**

## Expansion Costs Cause Carrier To Show Loss

SYRACUSE, N. Y.—Expansion of manufacturing facilities and a new plant program caused the Carrier Corp. here to show an operating loss of $1,418,244 at the close of the fiscal year ending Oct. 31, 1946, the company's annual report to stockholders revealed.

However, tax carry backs gave the firm a net profit for the year of $209,439.

The company spent more than $1,700,000 during the fiscal year for factory modernization, including the installation of new equipment for food freezer production.

Partially completed installation contracts "resulted in expense that did not put profits on the books during fiscal 1946, but will do so in succeeding periods as the contracts are completed," the report explained.

The statistical report for Carrier and subsidiary follows:

| | 1946 | †1945 |
|---|---|---|
| *Earned per common share | $.03 | $.53 |
| Completed cont. & sales | 23,476,247 | 29,144,391 |
| Operating loss | 1,418,244 | ‡474,514 |
| Loss after other income | 1,300,090 | ‡496,442 |
| Factory rearrangement, etc. | 288,471 | 599,141 |
| Prov. fedl & exc. prof. tax | | 51,000 |
| Tax carry-back credit | 1,798,000 | 536,000 |
| Net profit | 209,439 | 382,301 |

*After preferred dividend requirements. †Adjusted. ‡Profit.

## Philco Shows New Products At Distributor Meetings

PHILADELPHIA — Several new products, including a complete line of electric clocks, three new flashlight models, factory-sealed jeweled phonograph needles in a transparent plastic display, a new dynamic tester and a lightweight oscilloscope, were presented to about 700 Philco distributors and district representatives at meetings in Chicago, Philadelphia, and San Francisco arranged by James M. Skinner, Jr., general manager of the Philco Accessory Division.

Mr. Skinner pointed out that Philco volume in automobile radio receivers, aerials, tubes, and other replacement parts, as well as "Easy-Out" ice trays, furniture polish, test equipment, dry cell batteries and similar products handled by the accessory division, reached record-breaking high levels during the past year.

During 1947 for the first time, the accessory division products—including such new items as electric clocks and flashlights—will share in intensive advertising and merchandising in which distributors and dealers will participate. James H. Carmine, vice president in charge of merchandising for Philco, explained how national radio and magazine advertising, newspaper, trade, and business magazine advertisements will be used to stimulate demand for the company's expanded line of accessories and parts.

## Stokol Stoker Moves Operations To Larger, More Modern Quarters

INDIANAPOLIS — Stokol Stoker Co. has moved to larger and more modern quarters at Northwestern and 21st Sts., Indianapolis.

In announcing the move, A. H. Gardner, general manager of Stokol, stated the new location will give greater facilities to meet expanding operations and better serve a growing distributor organization.

## Housewares Exhibition Attracts 375,000 To See Latest Appliances

DETROIT—More than 375,000 persons viewed the latest in household appliances at the fourteenth annual Housewares Exhibition sponsored by the J. L. Hudson Co., large department store here recently, it was estimated by James B. Ogden, manager of Hudson's electrical appliance department.

This, he said, was one of the largest crowds ever attracted to a Housewares Exhibition.

Designed as an educational feature to show the public why the appliances they buy are worth the money they pay for them, the Exhibition completed its successful two-week run on Feb. 1.

Of the 69 exhibits crowded on Hudson's block square tenth floor, 30 were devoted to major appliances. In addition to these, some models of appliances without regular exhibit spaces were scattered about the major appliance area.

Almost all leading models of refrigerators, home freezers, washers, ranges, ironers, water heaters, automatic dishwashers, and vacuum cleaners were represented.

Kitchen planning received strong emphasis. Two sets of three or four model kitchens each were set up in widely separated corners of the floor. In addition, the Detroit Edison Co. exhibited 10 different kitchen planning ideas laid out in miniature models and set up on a circular display table. All were critically inspected by Exhibition visitors.

In the major refrigerator and home freezer exhibit, Hudson's placed its own private brands, both AMC products. The displayed refrigerator was a 7 cu. ft. model, while the home freezer had a 6.15 cu. ft. capacity. Both featured freezing coils of all copper construction.

Most unorthodox of the refrigerators exhibited was the Frostair duplex refrigerator and home freezer. Manufactured by the General Tire & Rubber Co. and the Liquid Carbonic Corp. at Chicago, the box is claimed to be the only one on the market with two separate power units.

Hudson's advertised the Exhibition through Detroit's three leading daily newspapers, the semi-weekly Shopping News, over the radio, through invitations to certain groups, and by store posters.

Though its prime purpose is educational, the Exhibition has been found to alleviate the January slump.

## Vim Trade-in Advertisement Arouses N. Y. Radio Dealers

NEW YORK CITY—The specter of a revival of price cutting disguised as trade-in allowances designed to sell high priced merchandise which the public refuses to buy aroused radio retailers here recently.

They opened fire when Vim Radio & Sporting Goods Stores, Inc., large local retail radio chain, inserted an advertisement in two local papers offering a trade-in allowance of up to $100 for a prewar radio set on "a new 1947 nationally famous automatic radio-phonograph combination."

Milton Samuel, advertising manager of Vim Stores, denied that the trade-in offer was a price cut. He said that it was part of a store policy which would see every set traded in repaired and sold.

Continuance of trade-in allowances on radios will make 1947 much like the prewar days when competition was keen and profits limited, other radio buyers fear.

## 4 Omaha Packing Plants Will Use $200,000 In Refrigeration Equipment

OMAHA, Neb.—Four new packing house expansions to utilize approximately $200,000 worth of commercial refrigeration equipment have just been revealed for Omaha and territory, the largest being the project of Kingan & Co., Omaha, to expand its meat packing facilities to approximately double present capacity, according to William M. Moore, manager. In addition to these four projects, Richard E. Witt will erect and operate a $75,000 ice plant at Gering, Neb.

The Greater Omaha Packing Co. will erect a $12,000 hide warehouse with controlled temperature, while the Flicker Packing Co. of North Platte is starting construction of a $125,000 meat plant including modern cold storage facilities. The Ford Packing Co., Grand Island, has taken out a state charter with $150,000 capitalization, and plans extensive expansion. Incorporators were Orrin Chaffin, Harold D. Pichler, and Opal M. Pichler, all of Grand Island.

Three new buildings will be added in the Kingan & Co. expansion, and one is already under construction. The firm expects to have all three completed this year, and to add three new operations including processing of hogs and lambs, preparation of fresh and cured pork cuts, and the rendering of edible and inedible by-products. The firm now is engaged solely in beef production. Mr. Moore said the expansion will equip the plant to handle 6,000 hogs and lambs a week, in addition to the current kill of 2,000 head of cattle weekly.

Since acquiring the plant from Kroger Packing Co. about a year ago, Kingan has added chill rooms and freezer facilities. All of the new buildings will be three stories high and of steel and concrete construction.

## Bill Requiring License For R. I. Refrigerating Engineers Introduced

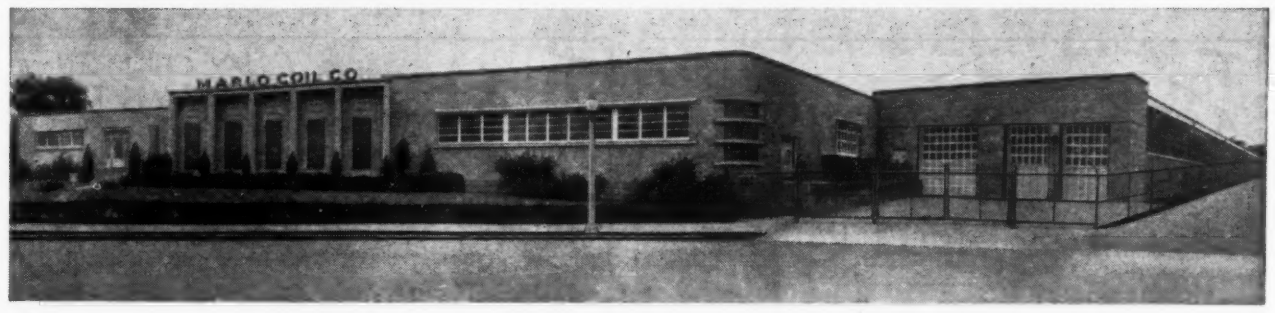
PROVIDENCE, R. I.—Licensing of refrigerating and stationary engineers and steam boiler operators by the State Labor Department would be required under a bill introduced Jan. 29 in the Rhode Island Legislature by Senator Raymond A. McCabe of Providence, deputy Democratic floor leader.

The measure would create the position of chief examiner, to be appointed by the director of labor. His salary would be not more than $3,400 a year.

Persons desiring to engage in such operations on and after Oct. 15 of this year would be required to pass examinations which would be set up by the bill.

Persons who are already operating equipment specified when the bill became law would be entitled to receive their licenses without examination.

## Fourth Addition In 13 Years for Marlo Coil Co.




* * *

## $350,000 Air System

HOUSTON, Tex.—The installation of an air conditioning system in the Medical Arts building in Houston. expected to cost in excess of $350,000, is under way under the direction of the C. Wallace Plumbing Co.

The contract calls for an air conditioning and heating system, construction of a cooling tower, and installation of compressors.

Wyatt C. Hedrick is architect-engineer in charge.

## Marlo Completes 18,600 ft. Expansion of Plant Facilities

ST. LOUIS — Construction, which expands facilities by 18,600 sq. ft., has recently been completed by Marlo Coil Co. here, according to Vice President Stephen J. Manhard.

The addition, which will provide increased production space and provide loading platforms, is the fourth expansion of Marlo's facilities within 13 years.

## Service Electric Set Up In Virginia

RICHMOND, Va.—Service Electric Co. of Portsmouth, Va., has been granted a charter of incorporation with authorized maximum capital of $30,000 and with Clyde Loreigh Furman of that city as president. It is authorized under its charter, according to Mr. Loreigh to conduct a general appliance and electrical business.

## Market Layout Features Cases

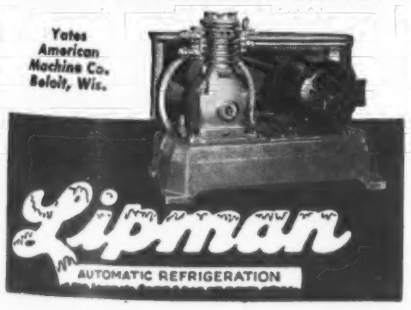
BINGHAMTON, N. Y.—Benson's Market has been remodeled and converted into a semi-self service store through the use of Hussmann & Ligonier commercial refrigeration equipment to aid customers in their shopping.

Customer convenience was the theme in laying out and installing open units for frozen foods, etc.


Certified
BY A QUARTER CENTURY OF REFRIGERATION KNOW-HOW

Plan your automatic refrigeration installations for a triple advantage: Proved performance, low first cost, low maintenance cost. LIPMAN machines for dependable service in any field of commercial refrigeration are the result of more than a quarter century of manufacturing know-how. Let LIPMAN serve your needs profitably!

GENERAL REFRIGERATION DIVISION




for SULFUR DIOXIDE and METHYL CHLORIDE

See Your ANSUL WHOLESALER

These Ansul Refrigerants have a long record for DRYNESS, PURITY and DEPENDABILITY. You will like Ansul's friendly service.

*REG. U.S. PAT. OFF.

ANSUL CHEMICAL COMPANY
REFRIGERATION DIVISION
MARINETTE, WISCONSIN
Distributors for Kinetic's "Freon-11," "Freon-12," "Freon-21," "Freon-22" and "Freon-113"

PRECISION MAKES PROFITS .. WHEN YOU SELL SERVEL*

HOW OIL GROOVE GREASES SALES

The smoothness of operation that brings customers back for more Servel Supermetics is a reflection of the high quality carefully built into every part.

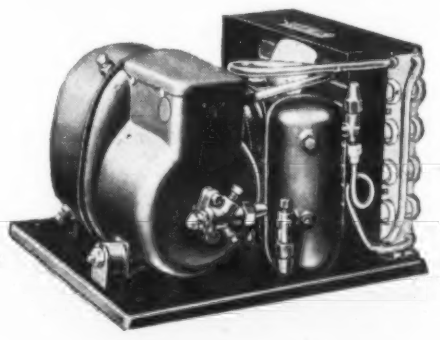
For example, connecting rod and wrist-pin assemblies are accurately ground and honed to super-smoothness by the most efficient precision methods on the American market. The connecting rods are grooved in the center against the crankshaft surface. Then they are drilled, so that oil will be forced from the groove through the rod to the wrist pin.

From the pin, the oil is allowed to pass to the piston surfaces, where it is evenly distributed over the cylinder walls. Thus force-lubrication protects every vital part of the Supermetic, assuring long, useful life, minimum service costs, and a host of satisfied customers.

Many other Servel Supermetic "superfeatures" are described in detail in a new booklet, "Servel Supermetic," now available without cost. For your free copy, address a postal today to Servel, Inc., Division RN, Evansville 20, Indiana.

*Servel's new "Supermetic" condensing units serve dealers and fixture manufacturers in every vital field

1. STORE FIXTURES
2. MILK COOLERS
3. HOME LOCKERS
4. BEVERAGE COOLERS
5. VENDING MACHINES
6. ROOM COOLERS
7. FARM FREEZERS
8. WATER COOLERS
9. INDUSTRIAL COOLING
10. VEHICLE REFRIGERATION



Servel INC. EVANSVILLE 20, IND.

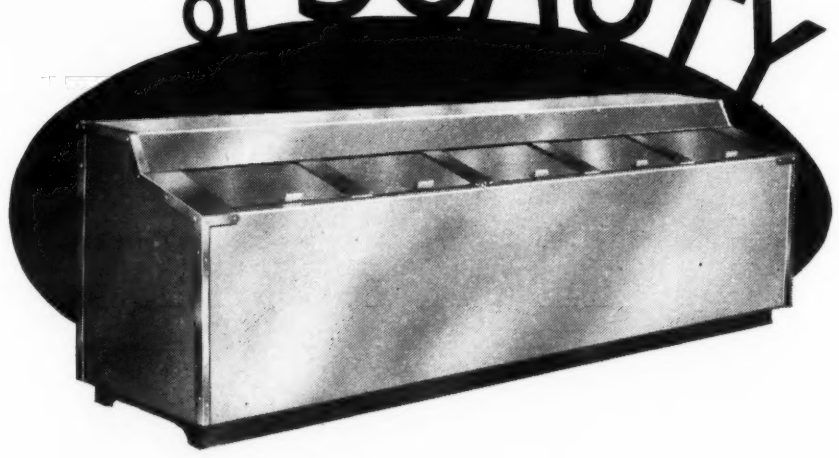
This is one in a series of advertisements featuring the scores of new machine tools and processes now being used to produce Servel Supermetics. Reprints are available to dealers individually or in sets as series progresses.

## They'll Do It Every Time . . . . By Jimmy Hatlo

FOR 364 DAYS A YEAR HE SIMON-LEGREES 'EM TILL THE HELP IS JUST ABOUT READY TO QUIT—
SNAP!
TOTE THAT BALE! PULL THAT BARGE!
MANAGER
COPR. 1946, KING FEATURES SYNDICATE, Inc., WORLD RIGHTS RESERVED
THEN COMES THE OFFICE DINNER—AND HE SOFTENS 'EM UP FOR ANOTHER YEAR—
THANX TO "INCOG", NEW YORK.
"MY CHILDREN"—THAT'S WHAT YOU ARE! YES, YOUR PROBLEMS ARE MY PROBLEMS—YOUR TRIUMPHS MY TRIUMPHS—
JIMMY HATLO
12-3

## Out With Special Privileges - - Revise the Wagner Act!

MARVEL of BEAUTY



SIZE:
39 inches high
30 inches wide
6, 8, or 10 feet long

**1947 Dry Beverage Cooler**

On the outside, beautiful stainless steel and polished aluminum . . . on the inside, polished aluminum. Truly a handsome piece that can be used anywhere with pride . . . either alone or with a counter or bar.

MARVEL of Efficiency

Rugged construction is combined with precision craftsmanship and the use of first quality materials throughout. The heavy duty fin-type coils give fast cooling and less frosting.

Designed for convenience, it is adaptable to many different uses. The stainless steel lids slide away or lift out easily. The 8-inch utility shelf is always handy. The dividers inside are readily removable. There is toe space under the edges.

CAPACITY:
(12-ounce bottles)
6-foot 17 cases
8-foot 22 cases
10-foot 28 cases

*Immediate Delivery*

**Dealers Wanted**
Write or wire for information about franchises.

W. ALLEN ROGERS Industries
Box 272-AC Demopolis, Alabama

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark registered U. S. Patent Office; Est. 1926

AIR CONDITIONING AND REFRIGERATION News

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F. M. COCKRELL, *Founder*

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VOLUME 50, NO. 6, SERIAL NO. 934, FEBRUARY 10, 1947

# Electric Range Business Has Chance of a Lifetime

LONG before there was an electric household refrigerator, an electric range was on the market. It worked, too. But it didn't sell. As a matter of fact, the electric range, like the "packaged" air conditioner, has often been a puzzling disappointment to its progenitors and to its promoters.

Again like the "packaged" air conditioner, the electric range fulfilled a definite need, and fulfilled that need gloriously. Clean, neat, sweet, swift, and eminently useful, it was a product of which any manufacturer, distributor, and dealer could be proud.

Why, then, didn't the general public take to it in large numbers? Why wasn't its sales volume comparable to that of the electric refrigerator, or even of the washing machine?

What went wrong?

Well, we can't answer that. But here's a better question:

Will electric range sales hit the two million-units-per-year mark soon after full production is resumed? Some market analysts think so. Others doubt that the total will pass the 1,500,000 point for many years yet; but all agree that the business will advance strongly.

Even the skeptics believe that this appliance is "overdue." It has plugged along for years and years at a comparatively sluggish rate, despite its highly obvious advantages as a home possession. It has comprised a "slow" business, and one which has seldom enjoyed major promotional efforts—either on the part of the many manufacturers or many dealers.

One deterring factor has been the conservative nature of some of the manufacturers which specialize on electric ranges. Outside of a few of the big corporations which merchandise full appliance lines, comparatively little promotional effort has been put behind this appliance. The specialists have been content to ride along on the coat-tails of the "full-line" manufacturers, and the work done by a certain few public utilities.

Among the dealers, ranges have been largely a companion appliance, a product to round out the line, or something to sell to a satisfied refrigerator customer. There are exceptions, of course; but in the main, specialty appliance dealers have not pushed electric ranges to the extent that they have propelled some of the hotter products in their showrooms.

But now their opportunity seems to be arising. One market alone—that of new housing—should provide a rewarding field. If a million and a half new homes are built annually during the next decade, as some real estate men predict, right there you have an outlet for a lot of electric ranges.

Furthermore, there's a low saturation mark for electric ranges, as contrasted with that for other major appliances, such as refrigerators, washers, vacuum cleaners, and radios. It's an opportunity for salesmen. To be sure, range selling has always been *hard* selling, but scores of dealers have proved that it can be done.

Cook-stove replacement sales in prewar days ran about 20% of those in use—not a large figure. But the replacement percentage for electric ranges should jump in 1947—just as it will for all overworked-in-wartime appliances.

Moreover, the demand for gas as a home-heating element has leaped and pyramided so unexpectedly that, in many of the largest metropolitan areas, new gas customers cannot be accepted, and new gas appliances cannot be installed.

What an opening for the electric range! True, they're in short supply. But they aren't prohibited!

From a long-range viewpoint this seems like The Chance of a Lifetime for the electric range business.

If the electrics can edge out the gas stoves for the No. 1 spot on the home cookery front this year, they should be "in" from now henceforth.

# Frozen Food Menus Posted In Gimbel's Window Plug Sales of Complete Meal

## *Separate Dept. Stresses Low Price, Easy Preparation*

By George Hanning

NEW YORK CITY—Frozen food menus, posted in a display window, help Gimbel's frozen food department lure home-hurrying commuters.

The department, adjacent to an underground concourse connecting midtown Manhatten's Herald Square subway station with the Pennsylvania Railway depot, is strategically located to take advantage of this transient traffic.

"A dinner for two; just heat and eat," the menus beckon.

A typical menu reads as follows:

**Menu No. 1**

| | |
|---|---|
| Baked Virginia Ham | $ .79 |
| Cut String Beans | .26 |
| Sweet Potatoes | .26 |
| | $1.31 |

$1.29
Dinner for Two
Just Heat and Eat

Another reads:

**Menu No. 2**

| | |
|---|---|
| Pot Roast and Gravy | $ .79 |
| Corn | .26 |
| French Fries | .29 |
| | $1.34 |

$1.31
Just Heat and Eat
Dinner for Two

All menus are reasonably priced and give a slight reduction in price to those who buy the complete meal, according to W. D. Eigo, assistant food buyer in charge of the frozen food department.

Because of the present difficulty in getting meats, these packages are only sold on menus, never separately, he added.

The display window, which at present is Gimbel's only method of advertising frozen foods, looks out on the concourse. In the center of the window is a dining table set with service for two. On the floor in front of the table are posted Gimbel's five frozen food menus.

Flanking these are large display sets on an icy looking background of chunk glass and exhibiting the various types and brands of frozen foods stocked by the department.

Behind the display is a window through which the prospect can see right into the department and watch customers make their purchases.

This latter feature is very potent in drawing patrons into the store, Mr. Eigo declared.

Mr. Eigo pointed out that the frozen food department has just completed its first year of operation as a separate entity. Prior to its formation, frozen food has been sold in the grocery department and sales were given no special impetus.

The frozen food department now has eight storage cases capable of holding from 400 to 650 standard packages of frozen food each. These are kept at 0° F. at all times.

Two unrefrigerated display cases contain dummy packages featuring different brands of foods.

In addition, the department has, for bulk storage, a large walk-in Frigid Freeze cooler of approximately 10 x 20 x 8 ft., which is also maintained at 0° F. Room is always left for about 200 lbs. of additional food, just in case the store suddenly gets a good buy, Mr. Eigo said.

At the present time, Gimbel's carries a wide line of frozen foods, including such specialties as quick frozen kosher foods. However, an attempt is being made to weed out brands of low quality, according to Mr. Eigo.

In its year of operation, the department has maintained its volume of sales, Mr. Eigo said. He recalled that when the department opened, a good share of its business was in frozen meats. Today, however, meat sales account for only about 25% of the department's total.

Peas are the best selling product, followed by spinach, he said.

All the department's sales are over the counter. The department has no facilities to deliver frozen foods, he explained. Individual sales vary from one or two packages to nine or 10, he added.

# *Nov.-Dec. Detrola Sales Pass $10 Million Mark*

DETROIT — Consolidated sales of International Detrola Corp. in November, first month of the company's 1947 fiscal year, were $5,504,140.10 and net profit after taxes was $250,-317.80 for the month, President C. Russell Feldmann disclosed.

"December sales indicate a figure in excess of $5,000,000 also," he added.

Final audit figures for the corporation's fiscal year ended Oct. 31, 1946, showed consolidated sales of $40,810,-028.22 against $36,244,179.76 in 1945, and net profit of $1,012,123.92 compared to $882,324.65 in 1945. The 1946 profit included $580,000 from sale of real estate not used in operations.

Earnings in 1946 equalled 84 cents per share on 1,200,010 shares as compared to 77 cents per share in 1945 on the number of shares outstanding at the time.

The company's manufacturing operations include nine plants in this country in radio, steel, refrigeration, aircraft, and special machinery, and two Canadian manufacturing affiliates.

## G. D. Becker Elected Soreng V.P. In Charge of Manufacturing

CHICAGO—George D. Becker has been elected vice president in charge of manufacturing of the Soreng Mfg. Corp. here, according to a company announcement.

Mr. Becker is resigning his position with Multi Products, Inc., Chicago and will assume his new duties early in February.

## *Williamson Heads New Weber District Office In St. Louis*

LOS ANGELES — Frosted Food Cabinet Division, Weber Showcase & Fixture Co., Inc., has opened a district office in St. Louis.

The office, headed by B. K. Williamson, will serve Missouri, Kansas, Arkansas, Illinois, from St. Louis and Kansas City, Mo.


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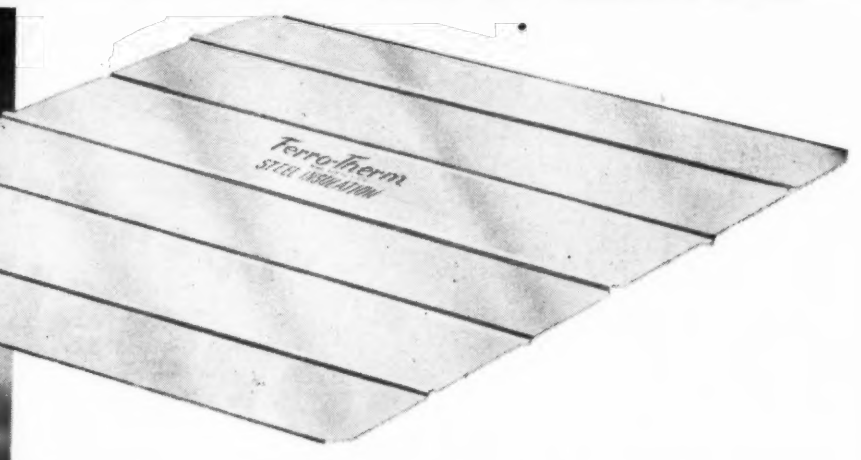


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## Westinghouse Manuals Give Builder, Architect Home Electrical Data

MANSFIELD, Ohio — Architects and builders will be provided with practical data on space requirements and construction details for accommodating electrical equipment in the home in a new series of manuals planned by A. Carl Bredahl, manager of the Westinghouse Better Homes Department.

The first of these manuals, "Planning the Kitchen Electrically," is just off the press. Manuals covering the other rooms in the home will be made available from time to time. In the kitchen manual, Mr. Bredahl divides homes into four series—to cover various sizes of homes and varying degrees of electrification. After discussing the fundamentals of kitchen planning and basic kitchen layouts and design details, he applies the rules to four specific house plans —Thrift, Budget, Ideal, and Deluxe—each one taking advantage of an added number of electrical conveniences.

After determining the proper "kitchen series," the designer selects one of 16 layouts from a key plan sheet. Detailed layouts follow the key plans, listing equipment required for the particular kitchen arrangement. The manual establishes storage and counter surface requirements according to the size of the home. Information on lighting, ventilation, and wiring is also included.

Price of the new manual is $1 per single copy.

## *Dept. Store Completes Air Conditioning Job Started Before War*

ST. LOUIS — Stix-Baer-Fuller, department store here, has completed air conditioning of its fifth, sixth, and seventh floors, as a tardy completion to air conditioning installation which began a year before Pearl Harbor.

The first four floors had been completed when the war put a stop to materials and labor availability, and continuance of the job was No. 1 on the store program following V-J Day.

The additional conditioning, an extension of the existing York installation, includes mixing chambers, blowers, and coils spotted at various locations through the selling floors, and ductwork along the wall-ceiling juncture on each side of the building. More than 300 tons are available when the system is operating at peak capacity, refrigerant piped through risers from the basement air conditioning equipment room. However, because of the fact that less active departments are concerned on the upper floor, such as furniture, gifts, pictures, rugs, etc., the system is flexible for operation of various cooling stations as needed. More capacity is concentrated in the gift shops and in sewing-classrooms in the art needlework section.

Scruggs-Vandervoort-Barney, another large department store, is also planning to take up air conditioning construction which was interrupted by the war.

# Servicing Truck Refrigeration Units

## *Instalment No. 20*

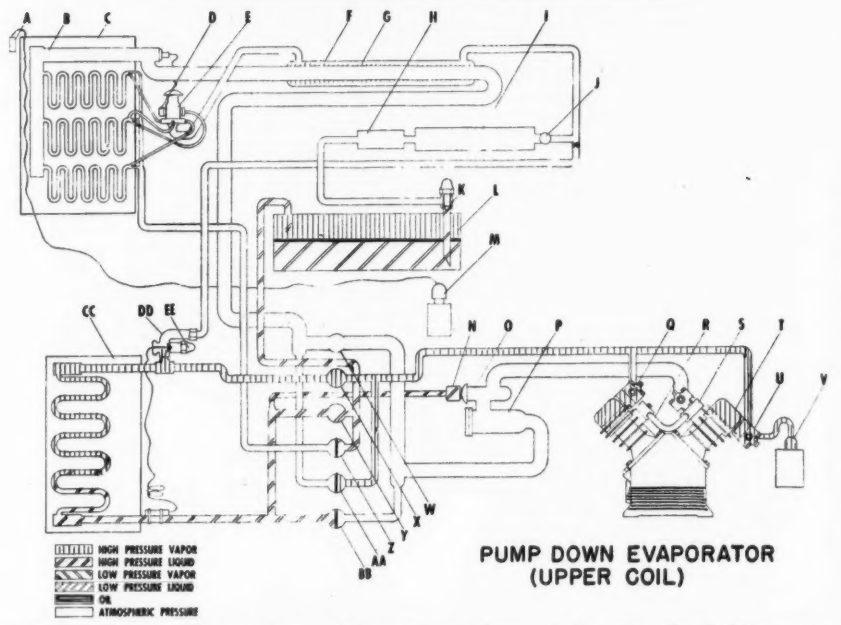

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA BB CC DD EE
HIGH PRESSURE VAPOR
HIGH PRESSURE LIQUID
LOW PRESSURE VAPOR
LOW PRESSURE LIQUID
OIL
ATMOSPHERIC PRESSURE
PUMP DOWN EVAPORATOR (UPPER COIL)

**Fig. 23 shows the various states of refrigerant in the Trail-Aire unit when the evaporator (C) is pumped down.**

Key to drawing: **A**—thermostat bulb; **B**—evaporator suction header; **C**—evaporator coil (upper); **D**—expansion valve adjusting stem; **E**—multi-outlet thermostatic expansion valve; **F**—heat exchanger; **G**—heat transfer fins; **H**—liquid line strainer; **I**—dehydrator; **J**—liquid indicator; **K**—receiver service valve; **L**—receiver tank; **M**—thermostat temperature control; **N**—load limiting valve bellows; **O**—suction load limiting valve; **P**—suction line strainer; **Q**—compressor discharge service valve; **R**—compressor suction manifold; **S**—compressor suction service valve; **T**—compressor; **U**—compressor discharge service valve; **V**—high pressure cut-out; **W**—hand valve suction (cooling); **X**—hand valve discharge (cooling); **Y**—hand valve liquid return (cooling); **Z**—hand valve liquid return (heating); **AA**—hand valve discharge (heating); **BB**—hand valve suction (heating); **CC**—condenser coil (lower); **DD**—thermostatic expansion valve; **EE**—thermostatic expansion valve adjusting stem.

* * *

### Replacing Heat Exchanger

The heat exchanger (F) is silver soldered together, but the inlets and outlets are soft soldered for easy removal in the field, if that should prove necessary.

### Replacing Dehydrator, Strainer, Liquid Indicator

The liquid line strainer (H) is of large capacity and should seldom become plugged. However, if it is necessary to replace this strainer, proceed as follows:

1. Loosen nuts holding the brackets over the dehydrator (I).
2. Disconnect the ½ in. SAE flare connection at the inlet end of the liquid line strainer (H).
3. Disconnect the ½ in. SAE flare connection at the outlet end of the liquid indicator (J).
4. Remove the complete assembly consisting of the strainer (H), dehydrator (I), and liquid indicator (J).
5. The strainer, dehydrator, and liquid indicator can now be disconnected from each other.

The outlet end of the strainer (H) is a ½ in. male flare thread which fits into the ½ in. female flare three inlet of the dehydrator (I). This joint is gasketed with a ½ in. copper flare gasket.

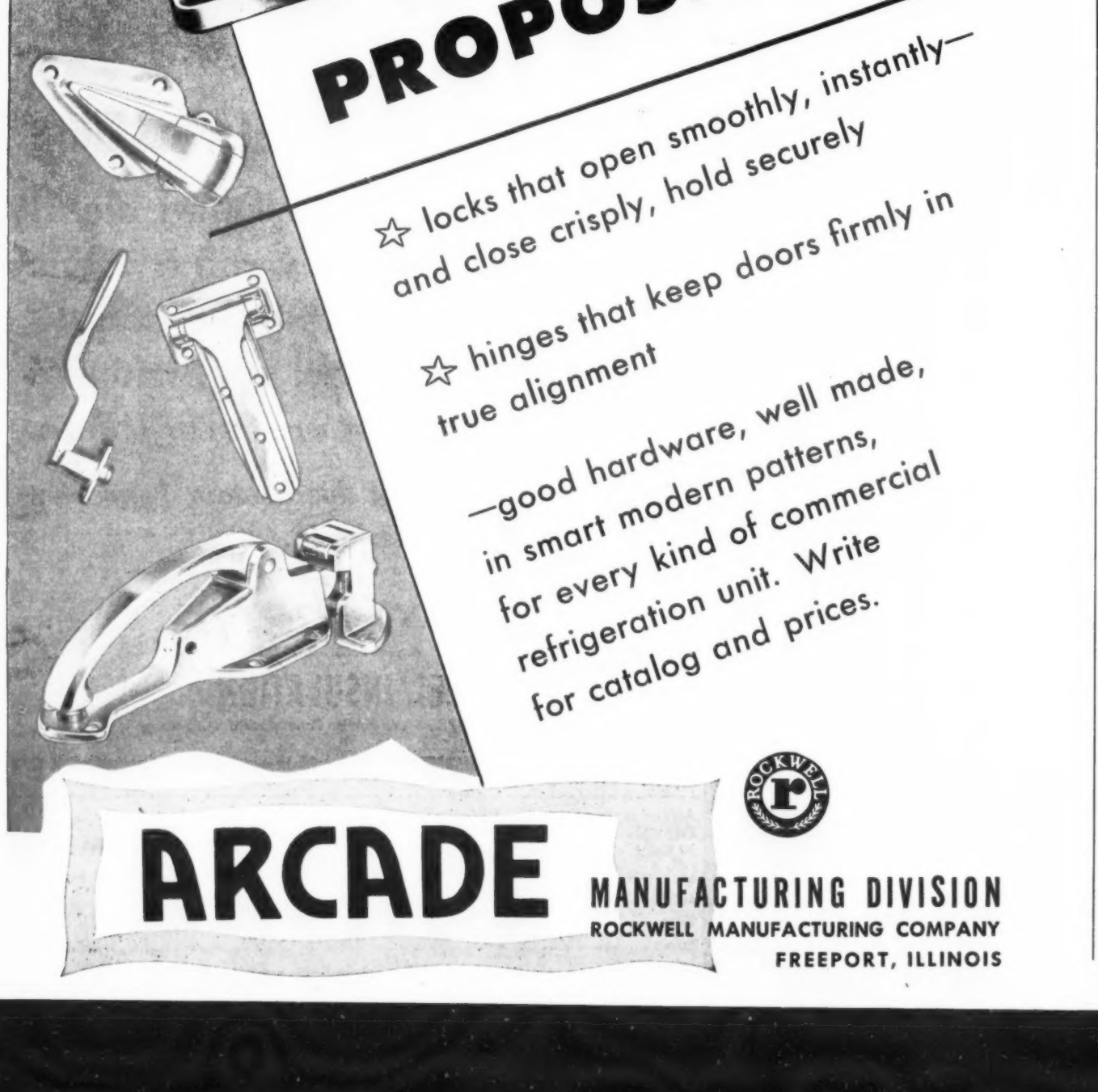
The ½ in. SAE male flare thread of the liquid indicator (J) fits into the ½ in. SAE female flare thread outlet of the dehydrator (I) and is gasketed with a ½ in. copper flare gasket.

*Caution:* Do not expose a new dehydrator to the atmosphere any longer than absolutely necessary, because the drying agent (silica gel) will rapidly absorb moisture from the atmosphere and thus become useless in the system.

### Purging Air

Before placing the unit back in operation, purge air from the system by removing the fitting from the suction service valve (S) gauge port opening to the atmosphere, and slightly opening receiver service valve (K), allowing air to escape through the gauge port.

After purging the complete system must be thoroughly tested for leaks, using a leak detector. During leak detecting the pressure on the system should be not less than 60 lbs.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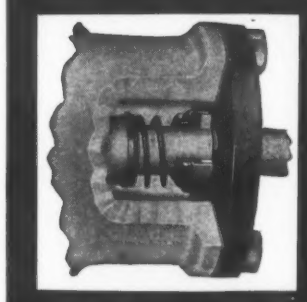
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# New Air Conditioning Units Make Bow at Heating, Ventilating Show

* * *

## From Window Type Ventilators....

*(All photographs by Austin Jones, Kerotest Mfg. Co.)*

**A window-type ventilator and air cleaner that has great flexibility in operation was the star of U. S. Air Conditioning Corp.'s display. Checking the control of an operating model are Gretchen Miller and Mary Stuart of the company; Mrs. John H. Dart, Pennsylvania Air Conditioning Co., Philadelphia; J. J. Ferretti, New York manager; and Clarence Hottel, Fidelity Engineering Corp., Baltimore.**

* * *

### *Window Unit Either 'Ventilates' or 'Exhausts'*

A window ventilator that provides great flexibility in operation was in the spotlight in the United States Air Conditioning Corp. exhibit.

The four-position control operates the twin blowers to (1) bring in 100% fresh air; (2) mix any proportion of outside and inside air; (3) provide 100% recirculation of inside air; (4) exhaust all inside air.

Control is manual, by means of a knob which slides up and down a slot on the front of the cabinet.

This same knob also functions as a rheostat by means of which the volume of air being handled can range from 100 to 480 c.f.m.

This room ventilator model also performs an air cleaning function, and is insulated to silence outside noises.

Also displayed was the USAirCo. upright store conditioner, which is available with 3-hp. and 5-hp. condensing units. The 3-hp. model handles 1,200 c.f.m., and the 5-hp. model handles 1,800 c.f.m.

### *Home Air Cleaner Has Automatic Operation*

A home electronic precipitator type air cleaner for use with household air conditioning systems, which will be retailed at "from $300-$400" was introduced by American Air Filter Co., Inc.

Production in quantity on this particular model is not yet underway.

In the operation of this unit, a series of plates imparts a positive electrical charge to sheets of 6-ply cellulose paper which extend over the plates.

Special feature is an air resistance gauge and control hookup which, when the collected precipitate cuts air flow to a certain percentage, shuts off the unit and starts up the apparatus which moves a fresh part of the paper into the air flow.

In normal household operation the paper would need replacing about once a year, representatives of American Air Filter stated. A warning light signals the need of a new paper supply.

* * *

## —To Electronic-Type Home Air Cleaners....

**Jeanne Walker of Cleveland Heights points to the device on the American Air Filter Co.'s "Electro-Klean" home type precipitator air cleaner, which keeps volume of air flow above minimum requirements at all times.**

### *Carrier Shows New Machines, Air Conditioning Units*

Two high-speed direct-driven condensing units, developed since the war, were among the 10 pieces of air conditioning and refrigeration equipment on view in the booth of Carrier Corp. One of the units, the 5-F-40, is a complete 25-ton water-cooled condensing unit, the other, 5-H-40, is a 25-ton unit intended for operation with an evaporative condenser.

A ¾-hp. self-contained air-cooled room conditioner of the console type rated at 375 c.f.m. was also shown, along with Carrier's restyled ¼-ton window type conditioner. Another display unit showed the principal features of the company's "Conduit Weathermaster" system for central type air conditioning which is designed to provide automatic individual control for rooms or areas in large buildings.

Among the other products shown was a 5-ton self-contained "Weathermaker"; a new home humidifier unit equipped with a fan to circulate air over a water filter; and three steam or hot water air units: the Model 46-Q-9 industrial air diffuser featuring a non-freeze coil; Model 46-E-124 disc fan unit; and the Model 46-S-242 projection type unit.

### *'Duo-Stats' Regulate from Outdoor Conditions*

Thermostats designated as Series 900 which standardize several other thermostats produced by the Johnson Service Co. were featured in the company's display, but chief prominence was given to the "Duo-Stats" which regulate automatic heating systems according to the requirements of outdoor temperature changes.

Available for either hot water or steam, the Duo-Stats can also be had for pneumatic, electric, or electronic operation. A dual thermostatic bulb arrangement is employed in these controls, one located outside the heated building which responds to outdoor conditions, the other bulb inside and connected to hot water or steam lines or radiators.

A compensating mechanism inside the control maintains a constant relationship between the two temperatures (inside and outside) and actuates flow valves or motors to control the heat source or distribution system.

Electric Duo-Stats are applied to the operation of oil burners, stokers, and gas-fired heating systems. The electronic controls can be applied to the same systems, with the advantages of providing greater sensitivity, and often simplifying installation, the company claims.

The hot water type Duo-Stats are being promoted for conventional type systems, but in addition special emphasis is being placed by Johnson on their application to radiant heating systems to solve the problem of time lag in radiant jobs.

## —To Console Room Air Conditioners

**J. T. Everbaugh of Carrier goes over features of the console-type Carrier room air conditioner with George W. Martin, dealer-contractor from Latrobe, Pa. Other new Carrier equipment displayed is described in the accompanying story.**

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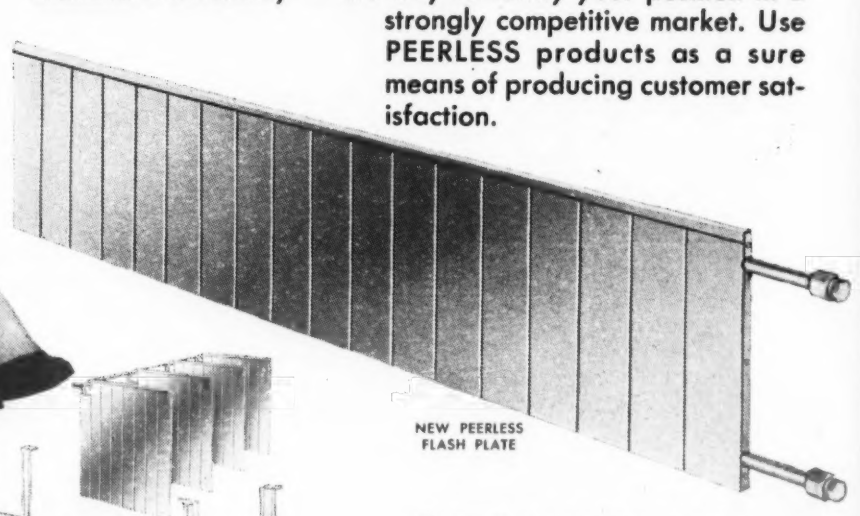


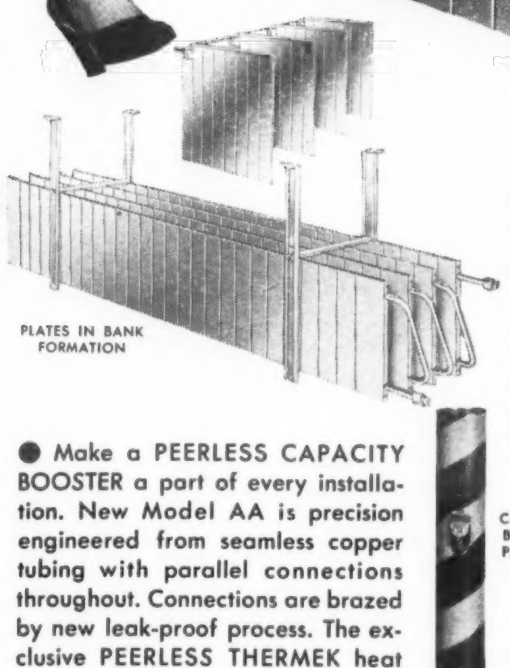


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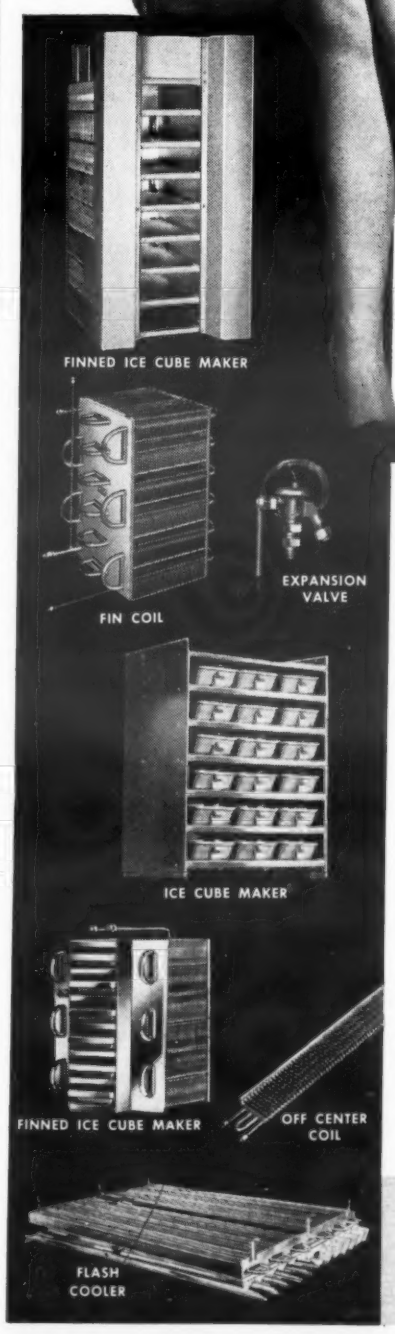


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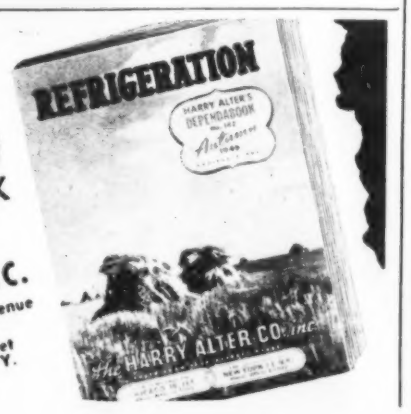
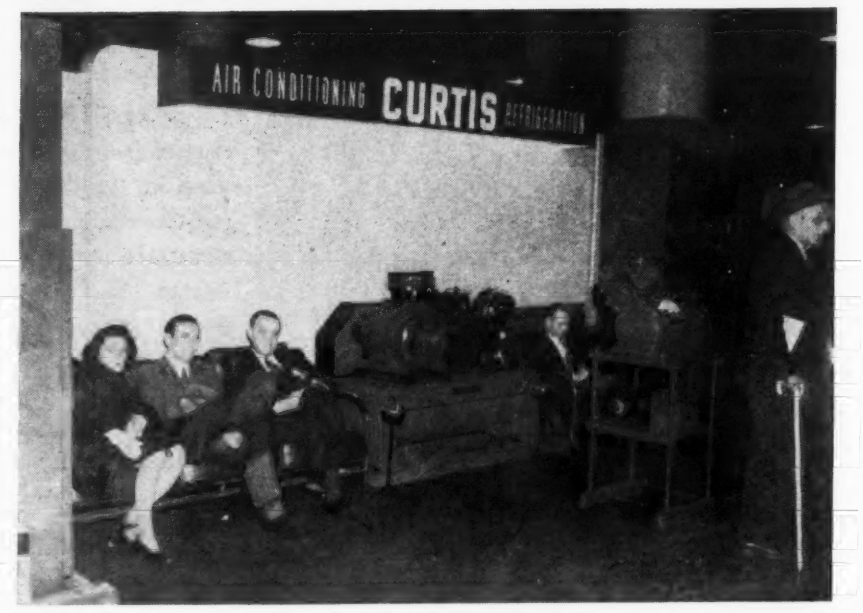


# New Air Conditioning Devices




*(All photographs by Austin Jones, Kerotest Mfg. Co.)*

**Curtis Refrigerating Machine Division was featuring both its refrigerating machines and some newly designed air conditioners. From left to right in the picture (all seated) are Mr. and Mrs. A. E. Adams, Capaduca Store Fixtures, Pensacola, Fla.; H. C. Morrison, Curtis; and John L. Morrison, Kuhr Bros., Savannah, Ga.**

• • •

## Curtis Offering 10-Ton 'Central Machine' Set-up

Two air conditioners (a 5-ton package unit and a 10-ton "central" machine), along with a 10-ton shell-and-tube condensing unit and an operating cutaway model of its 1-ton compressor were displayed by Curtis Refrigerating Machine Div. at the exposition.

The 10-ton central machine, which mounts the condensing unit and coils in a single unit for connection to ductwork, has been restyled to provide more generous cooling surface and to be more compact. It has a cleanable shell-and-tube condenser. Not shown were two other sizes of this machine—a 7½ ton and a 15-ton model which Curtis produces.

Made also in the 3-ton size, the 5-ton package conditioner on display featured a restyled one-piece cabinet, top section of which is removable. This unit likewise features more cooling surface, Curtis claims, and has been equipped with a horizontal shell-and-tube condenser to replace the vertical type formerly used. Easy accessibility of all parts is another major feature claimed for this line.

Both the package and central type conditioners can be equipped with heating coils for year-round air conditioning.

## York Emphasizes Larger Equipment

Centering its display around a 300-ton turbo-compressor which was jacked up to show its internal structure, York Corp. emphasized its method of distributing larger size equipment through mechanical contractors for jobs as specified by architects and engineers.

Back panel of the York booth listed the sales engineering personnel, including pictures of the nine district heads and maps of the districts, pictures showing York's various products, and a panel outlining the service and maintenance facilities available.

The 300-ton compressor (actually on its way to a job but held over for the Cleveland show) is the next to the smallest in a line of nine units ranging up to 1,600 tons in capacity. Designed for "Freon-11" operation, the machine features stainless steel blades on the impeller to resist both erosion and corrosion at high speeds and to preserve balance.

Pre-rotation vane control is claimed to provide maximum capacity reduction consistent with stable operation. Silver-brazed tubes in the condenser and cooler have strong, leak-proof joints permitting easy removal of the tubes, York says. Double-trough design of the cooler lowers the center of gravity and also makes for easier maintenance, it is claimed.

## Reverse-Cycle System Got Close Attention

**A. Aird and Jim Miron of Modern Engineering Industries Reg'd, Montreal, Canada, squat down for a better look into the insides of a Drayer-Hanson "Airtopia" reverse cycle air conditioner, as W. L. Holladay, Drayer-Hanson engineer, looks on.**

## Electronic Controls For Greater Sensitivity

Electronic controls for air conditioning, gas and oil burners, railway passenger cars, airplane cabins, in addition to pneumatic controls for panel heating systems in commercial buildings, a panel display of its "Moduflow" system, plus a new air register which will go into production shortly were shown at the exposition by Minneapolis-Honeywell Regulator Co.

Although not yet in production, the lines of electronic controls are now being field tested and should be generally available later this year, the company told booth visitors.

Employing thermostatically sensitive wires, the electronic controls have no moving parts and are sensitive to within 0.1° F., the company claims. Almost all of the "droop" which characterizes most controls is eliminated in the electronic system, it is said.

The railway car controls, also electronic, are intended for use with a panel type heating and cooling system employing the side walls and floors. Both sides of the car are controlled separately to compensate for differing outdoor conditions, such as sun or wind effect, on opposite sides. A similar system developed by Minneapolis-Honeywell is used on airplane cabins.

Adjustable volume damper is one of the features in the new register.

## Field Tests Providing 'Airtopia' Cost Data

Drayer-Hanson had in operation one of its "Airtopia" reverse-cycle air conditioners. The particular model shown employed a 3-hp. condensing unit and two 1-hp. blowers.

(Description of the "Airtopia" reverse-cycle system was published in some detail in the Jan. 20 issue of the NEWS.)

Drayer-Hanson officials in attendance declared that studies were now being made to determine the operating cost of these reverse-cycle units. A representative of the firm's Houston, Tex. distributor, declared that in the month of December, a particularly cold December for Texas, total electric power bill for the office (which is heated by a 3-hp. "Airtopia" unit) was $27.

## Utility Appliance Making Many Types of Blowers

Before a background of plant production pictures, Utility Appliance Corp. showed a redesigned blower wheel and new die-cast aluminum pulleys for V-belt drive along with most of its appliances for heating, ventilating, cooling, and cooking.

Among the appliances exhibited were an evaporative cooler, a blower for ventilating and air conditioning systems, a propeller fan for ventilation or air exhaust, and a panel fan. Other products included one of the burners used in all Utility heating equipment, a console heater, a dual outlet furnace for heating adjoining rooms or suites, and a forced air furnace.

**The new electronically operated air conditioning control system which the company is introducing got top billing in the Minneapolis-Honeywell exhibit.**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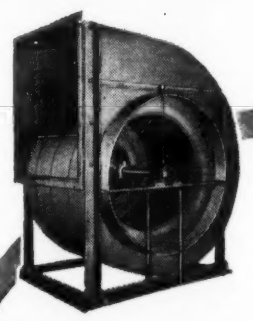
ENGINEERED AND MANUFACTURED FOR EVERY AIR CONDITIONING NEED!

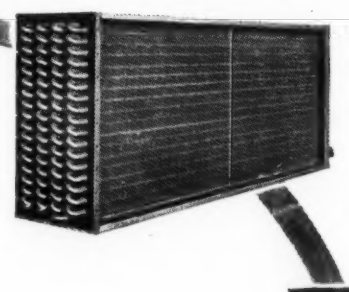
usAIRco BLOWERS

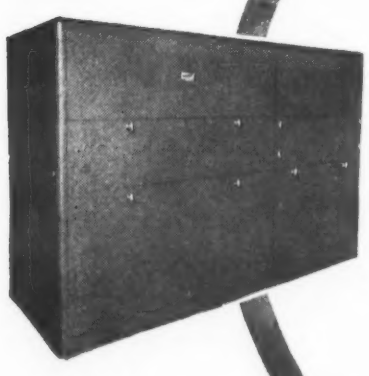
Specified and used for all types of air conditioning, heating and ventilating in public buildings, industrial and commercial applications. Quiet in operation, economical and long-lasting.



usAIRco COOLING AND HEATING COILS

usAIRco manufactures steam coils for heating (standard and non-freeze type), water coils for cooling and heating and direct expansion coils.



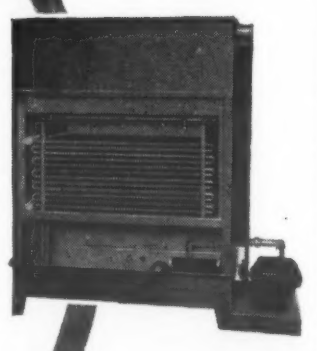


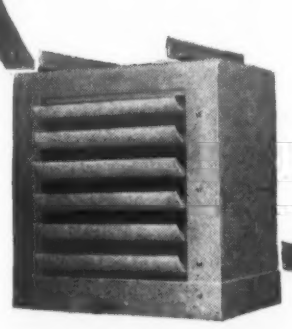
usAIRco REFRIGERATED KOOLER-AIRE

A single compact unit that combines cooling and dehumidifying refrigeration compressor and evaporative condenser all in one balanced assembly. Capacity 3 to 40 tons.

usAIRco EVAPORATIVE CONDENSER

A packaged cooling unit for condensing refrigerants with minimum water costs.





usAIRco UNIT COOLERS

These units are manufactured in nine sizes for varied commercial and industrial applications including both low temperature operations and ordinary comfort cooling. Unit Coolers are designed for efficient and trouble-free operation.

usAIRco UNIT AIR CONDITIONERS

Packaged air conditioning units engineered to provide low-cost comfort cooling. Used for cooling and dehumidifying. Combination units provide winter heating and summer cooling.

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DOUBLE SHOT Cooling Units

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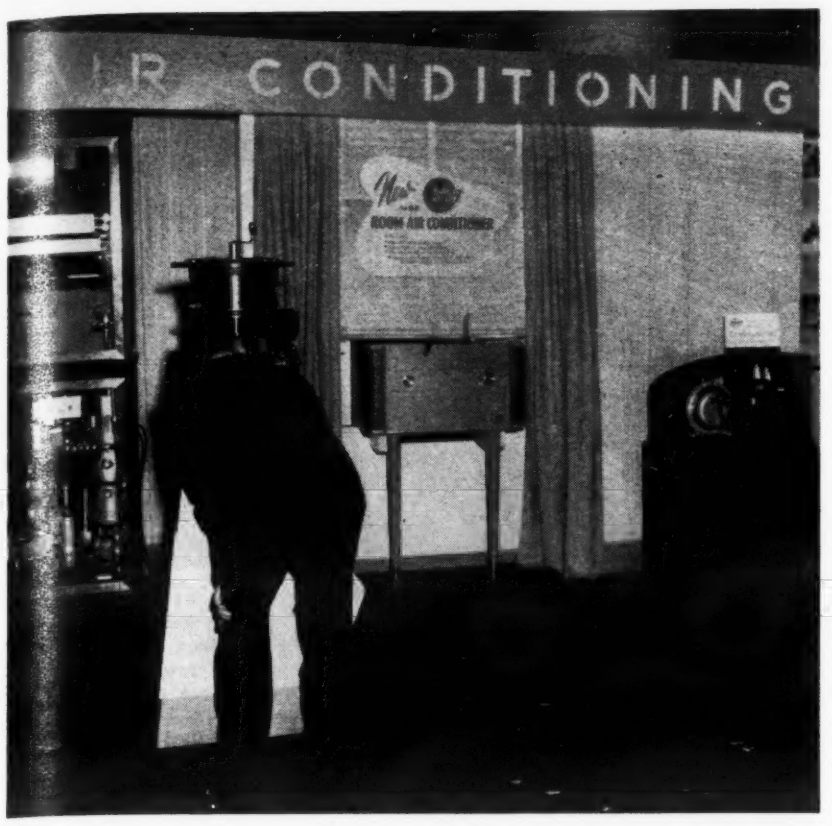
1825

AMERICAN COILS CO.

## Room Unit Sits on a Sill or Legs




*(Photograph by Austin Jones, Kerotest Mfg. Co.)*

**In the Chrysler-Airtemp booth, a visitor takes a close look at a cutaway model of a radial compressor. In the center background is the new Airtemp window room air conditioner.**

* * *

### *Airtemp Conditioner for Floor or Window Mounting*

Most any time exposition visitors stopped at the Chrysler Airtemp display, they could see a crowd gathered around the division's brand-new ¾-hp. room air conditioner which was brought out for public inspection for the first time.

Adaptable to either window or floor mounting, the conditioner is scheduled to go into production in April, according to a spokesman.

"Unique" design of the unit is said to permit simple installation in all types of windows and its light weight and compact size to make installation easy. It is air cooled, needing only plugging into an electric outlet to provide filtered, cooled, and dehumidified air.

The conditioner is equipped with an adjustable outside-air intake and fans may be operated separately for ventilation and air circulation when cooling is not required. It is also equipped with the Airtemp sealed radial compressor.

Two other new products had their initial showing at the exposition: a pilot model of a wrap-around case, which housed a 5-SCA packaged air conditioner, and an automatic changeover thermostat for control of year-round comfort.

Features cited for the thermostat include single adjustment scale for both heating and cooling; initial stop to prevent setting cooling below heating or vice versa; internal adjustable stops to limit top setting of heating adjustment and low setting of cooling adjustment; and "no possibility of overlapping of heating and cooling functions."

A wide variety of other products were exhibited to show the completeness of Airtemp's line of heating, air conditioning, and refrigeration equipment. On display in the colorful booth were:

Model 3-RSCD combination year-round residential air conditioner; Model 3-SCD packaged air conditioner; a 22-cu. ft. reach-in refrigerator; a ¾-hp. sealed radial condensing unit; a cutaway model of the sealed radial compressor used in the 3 and 5-hp. packaged air conditioners; Model ACR-25 radial compressor, a hopper model of the automatic stoker; an automatic oil-fired steel boiler; an automatic oil-burning water heater; and an automatic oil-fired vapor flame winter air conditioner.

A picture display showed how Cyclewald standardized panel sections are used to build any size walk-in refrigerator.

**Since space limitations make it impossible to cover all Heating & Ventilating Show exhibits of interest to News readers in this issue, this information will be continued in a future issue.**

### *Ice Air Conditioning Co. Displays 'Package' Coolers*

Occupying the center of Ice Air Conditioning Co.'s booths was a 5-ton packaged air conditioning unit in operation. "Windows" in the conditioner permitted inspection of parts.

A background display announced that Typhoon "Prop-R-Temp" self-contained units are available also in 3 and 7-ton models. On exhibition too were Typhoon coils.

* * *

## Package Conditioners In 3 Sizes

**Gloria Marra of Cleveland poses with a display model of the Ice Air Conditioning Co.'s self-contained 5-ton mechanically refrigerated air conditioner. Window panels permit viewing of principal components. Other models are 7-ton and 3-ton conditioners of the same design.**

### *New Safety Pilot Among White-Rodgers Controls*

A new White-Rodgers product announced at the exposition is a push-button ignitor safety pilot. Use of the safety pilot was depicted in a gas heating control demonstration in the American Gas Association exhibit.

On panels forming the background of the White-Rodgers display were models of the company's thermostats, heating controls, gas controls, and refrigeration controls.

### *Aerofin Shows 4 Coil Types*

Four types of heating and cooling coils representative of standard production items were shown by Aerofin Corp. These included a centrifugal header direct expansion coil, a Type C T water coil, and a Type F non-freeze coil.

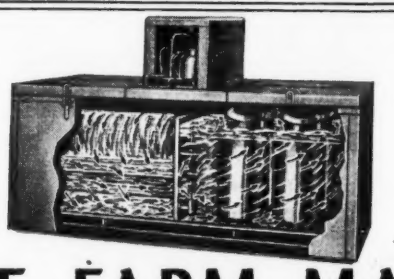
*(Photograph by Austin Jones, Kerotest Mfg. Co.)*

**Crowd gathers in the White-Rodgers Electric Co. booth to inspect the new control items shown by the company at the Heating & Ventilating Exposition.**


WILSON
SELF-CONTAINED AUTOMATIC HIGH WATER LEVEL ZERO-FLOW

STOPS MILK SPOILAGE

COOLS THE DANGER ZONE FAST



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Packaged-Unit Milk Cooler
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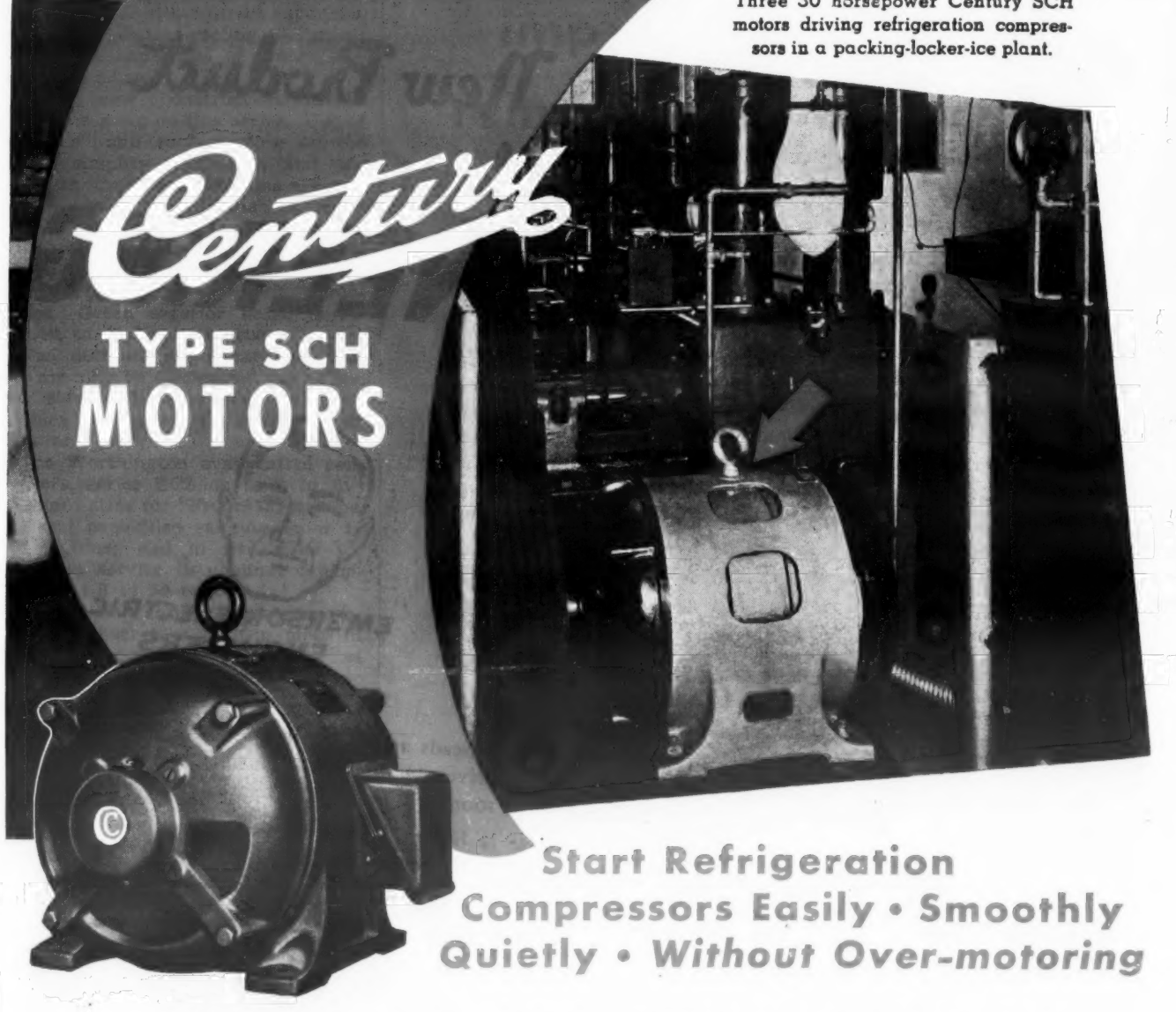
For Franchise Information, Address Dept. 11 WILSON REFRIGERATION, INC., Smyrna, Delaware



Three 30 horsepower Century SCH motors driving refrigeration compressors in a packing-locker-ice plant.




Start Refrigeration Compressors Easily • Smoothly Quietly • Without Over-motoring

Refrigeration compressors under load are easily handled by Century SCH motors with high starting torque and low starting current. With this type Century motor it isn't necessary to over-motor the running load in order to get enough starting torque to start the compressor.

This often means that a motor with the next lower horsepower rating can be used when you select a Century SCH motor instead of a general purpose squirrel cage motor.

Century motors are built with rugged frames and accurately machined feet to assure solid mounting. They are well balanced mechanically and electrically. All these features and many others contribute to the smooth, quiet, dependable operation of Century motors.

There is a Century motor for every refrigeration, air conditioning and air circulating application. They are built in a wide range of types, in sizes from 1/6 to 400 horsepower. They are all engineered to the requirements of the machines they drive to assure top performance.

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# Products From the Exposition

## McQuay Shows Wide Line of Equipment

*(Photograph by Austin Jones, Kerotest Mfg. Co.)*
**In the McQuay, Inc. exhibit Jim McEntee, New York; Milt Greenberg, White Plains, N. Y.; and Jim McGuire, New York, examine a ceiling-type air conditioning assembly.**

* * *

### *McQuay Emphasizes Special Design Features*

Featuring its "ripple fin" coil construction claimed to provide better heat transfer by creating turbulence in the flow of the cooling or heating medium, McQuay, Inc., displayed several items for the air conditioning, refrigeration, and heating fields.

Newest product was a restyled standard unit heater. Two year-round central system air conditioning units were displayed—the FT-50 floor type and the ST-37 ceiling mounted type. There was also a ceiling type comfort cooler and a ceiling type unit cooler.

Prominent display was given to the R.P. water coolers for cooling or heating which features removable plugs to facilitate internal cleaning of the tubes. A DX type direct expansion coil was shown, along with a steam blast coil, and a down-flow type unit heater of circular design.

### *Window, Floor Models In Kauffman Line*

Window model air conditioners in the line being introduced by Kauffman Air Conditioning Corp. will be priced starting at $375, and floor models probably will start at $475, it was revealed by company officials at the Exposition.

(Complete description of the Kauffman room cooler line was published in the Jan. 20 issue.)

Among the prime features are the following: the window type will fit any window 21 in. wide or more, only electrical connections being necessary; cooling, dehumidifying, circulation, and filtering of air are functions accomplished; control is by a single switch; floor models have air-cooled condensing units and employe but one motor; all water of condensation is used to cool the refrigerant; air is delivered in a sheet form at an angle of 25°.

**Kauffman floor-type conditioner.**

## New Products Introduced by Cleveland Concern

*(Photograph by Austin Jones, Kerotest Mfg. Co.)*
**The new ¾-hp. window-type air conditioner being introduced by Viking Mfg. Corp. of Cleveland gets the onceover from Jerry Andrews, San Francisco; Jim Roche, Carmel, Calif.; M. C. Cameron and H. D. Trowbridge of Viking; and Harry Shanks, Chrysler-Airtemp.**

* * *

### *Viking Introduces ¾-Hp. Window Cooler*

Top interest at The Viking Mfg. Corp. booth was in the Vikimatic window-sill-type, ¾-hp. room cooler. According to a representative, production of the cooler is scheduled to get under way in March or April.

Also attracting attention was a model of the firm's line of fractional horsepower, air-cooled condensing units which include radial-type compressors. Water-cooled units are expected to be available later on, the spokesman said.

A third product shown was a year-round air conditioning unit comprised of a winter air conditioner combined with a 3-ton refrigeration unit. Winter conditioners for this unit are made in both oil and gas-fired types.

Another refrigeration item on view was a 20.3-cu. ft. reach-in. Other sizes are available.

Other models making up Viking's line of automatic heating, cooling, and commercial refrigeration equipment were on display. In addition to the units mentioned, the line includes oil and gas-fired utility room units, oil and gas-fired winter air conditioning units, oil-fired automatic storage type water heaters, conversion oil burners, oil-fired space heaters, coal-fired steel furnaces, and automatic stokers.

### *Buffalo Forge Offers Redesigned Condensers*

Of the several products displayed at the exposition by Buffalo Forge Co., one item, the Type MW industrial exhauster, was new; in fact, production is just getting under way. Another product, the Type ECC evaporative condenser, however, was recently redesigned as to exterior and is equipped with a new water circulating pump. These two improvements combine to simplify construction, the company points out.

Also shown were the Type B vane-axial fan, Type LL limit load ventilating fan mounted on a floating base, Type PCW cabinet for air conditioning applications, and the "Breezo-fin" unit heater.

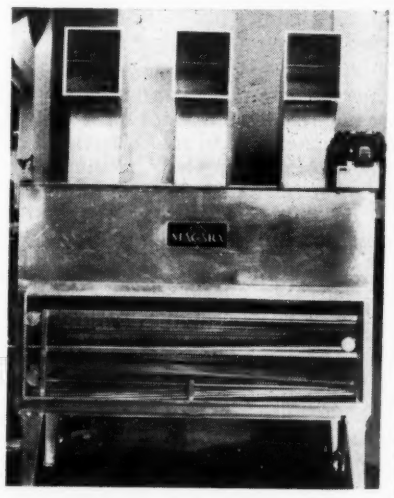
Center spot in the display was given over to a vane-axial fan developed by Buffalo Forge for use in the Lockheed Constellation airliner.

### *Niagara's 'Aero-Pass' Unit In 'Bantam' Sizes, Too*

Probably the largest single piece of equipment shown at the whole exposition was the towering "Aero-Pass" condenser produced by the Niagara Blower Co. Designed for large installations, this model's features are also available in a "bantam" line with capacities from 1 to 7.7 tons "Freon" and 1 to 6 tons ammonia.

Brand-new product shown by Niagara, however, was its High Pressure System Fan Heater, patented last year.

This heater is so constructed as "to utilize the latent heat of condensation of the high pressure steam; second, to utilize the latent heat of condensing the low pressure vapor, and third, to utilize the heat given off by cooling the final condensate in the air stream," according to Niagara.



**New Niagara high pressure steam system heater assembly.**

Units employing the Niagara "No-Frost" method for cooling, chilling, holding, and freezing of foods, as well as industrial cooling applications were also displayed. This unit incorporates a spray-type cooler, and when installed is connected to a concentrator (which restores the no-frost liquid employed), a compressor, and an "Aero-Condenser." Liquid cooler units rounded out the display.

*(Photograph by Austin Jones, Kerotest Mfg. Co.)*
**Automatic Products Co. took advantage of the opportunity to display its regular line of oil burner control equipment, and in addition, tested the interest of contractors and engineers in a new item being considered for possible production. Facing the camera here are (left to right) Al Neva of Cleveland, R. E. Peterson of Atlanta, Jack Cowan of Detroit, John Gibbs, Seattle, and D. M. Moore of Morehouse & Wells, Decatur, Ill.**

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Now is the time to bring out those blue-prints and new product ideas which, through no fault of yours, have been deferred to post post-war planning. Let your engineering brains and ours collaborate in "Twin-gineering" so when the really tough competition of improved appliance design gets under way, you'll enjoy that advantage so necessary to profitable merchandising.
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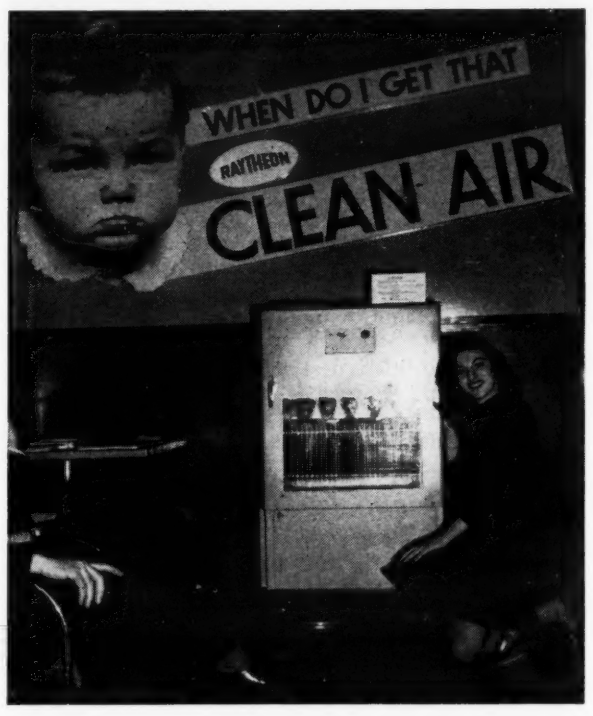
## Home Air Cleaner In a Package




Gloria Marra of Cleveland kneels down to demonstrate the compact design of the Raytheon home precipitator type air cleaning unit, a self-contained package designed for use in conjunction with a home air conditioning system.

*(All photographs by Austin Jones, Kerotest Mfg. Co.)*

### *Raytheon Reveals Home, Room Precipitators*

Lighted semi-automatic washing equipment moving up and down the face of a portion of a large industrial precipitator attracted many a passer-by into the space occupied by the industrial electronics division of Raytheon Mfg. Co. Three packaged precipitators completed the exhibit: a room unit, a home unit, and an industrial unit.

The portion of the large precipitator consisted of four tiers of 24" x 36" ionizer and collector cells, two wide. It was pointed out that unlimited combinations of the two basic cell sizes (24" x 24" and 24" x 36") make possible complete installations of any required capacity.

Housed in a metal cabinet 39" high, 26" wide, and 9" deep, the Room Precipitator plugs into any lighting circuit. According to Raytheon, the unit is readily installed in business or professional offices or homes.

A small edition of the Industrial Precipitator, the Home Precipitator is a self-contained package designed for use in conjunction with a home air conditioning system. Built into the cabinet are four special spray nozzles for washing the ionizer-collector cell assembly.

The model shown has a nominal rating of 1,200 c.f.m. and may be used on systems rated from 800 to 1,400 c.f.m. A second model has a nominal rating of 1,800 c.f.m. and is adaptable to systems of 1,400 to 2,200 c.f.m. A Raytheon spokesman said component parts of these models can be furnished for incorporation in furnaces.

All precipitators now are in production, the spokesman said.

### *Worthington Conditioners Have New 'User Helps'*

In the broad line of air conditioning and refrigeration equipment exhibited by Worthington Pump & Machinery Corp. air conditioners in a variety of models and design stood out.

The model SCY self-contained air conditioners in the 3-hp. and 5-hp. sizes include all the elements of a complete system in one cabinet (both sizes may be equipped with low pressure steam heating coils). It can be used within the conditioned space, or connected to ducts for use outside the conditioned space.

Among the special features of this model are an easily adjusted variable pulley, which permits variations in the blower speeds; helical-fin condenser design; and the hinged nameplate which serves as the cover for the manual control knobs.

Purpose of this latter is to keep the mischievous and the meddlers from fiddling with the controls.

The AVY series of commercial air conditioners, vertical and floor mounted, is built for either direct expansion or chilled water cooling, with air circulation capacities of from 1,600 to 12,000 c.f.m.

Some new construction details make the news on this series. Use of "gussets" and spot welding on the frame simplify production and add strength. Corrosion problems are met by the use of "speed nuts" to fasten panels, by using zinc or galvaneal steel on moisture exposed parts finished off with a rubber enamel that has special corrosive resisting properties. Green exterior finish is resistant to daylight exposure.

Fan sections are square, so that the air may be discharged out of the top, side, or back of the unit. This enables the contractor-dealer to fit it to any job.

The Worthington evaporative condensers, series ECZ, is built in five standard sizes for "Freon-12" service, nominal capacities ranging from 10 to 50 tons; and in five sizes for ammonia service in nominal capacities from 5 to 50 tons.

One special feature of the evaporative condenser is a built-in piece of auxiliary equipment consisting of water-treating material design to inhibit corrosion.

Many models of Worthington refrigeration machines were also displayed, from the giant centrifugal compressors to small commercial units.

### *Filters, Diffusers and Wind-Powered Exhauster*

Permanent all-metal filters, air diffusers, and exhausters were the Agitair products displayed by Air Devices, Inc., of New York City at the exposition, with special "play" being given to the "FM" type filter.

Claimed to be designed along "entirely new air filtering principles," the new filter is said to combine high dust-arresting efficiency with sustained low resistance to airflow. These two features, according to Air Devices, permit the filter to do a better filter job and remain in service "two to three times as long as ordinary 2 in. permanent, cleanable filters."

The FM filters are available in standard sizes and in 1, 2, and 4 in. thicknesses. Several sizes of grease filters are also produced.

Agitair rectangular air outlets were also featured. These Type R diffusers can be assembled into numerous patterns which "divide the air and discharge it in one or more directions in proportion to the areas served," says the company. Better diffusion control and ease of installation are claimed for these outlets.

Third product shown was the wind-actuated air exhauster, which is said to provide exhausting of air from a building, using wind for power.

## Exposition Visitor Gets on the 'Inside'

**Man in the above picture is not about to have his head snapped off by some strange monster, but is merely making a close inspection of a large Worthington centrifugal refrigeration compressor. Also gaining a lot of attention were various models of Worthington air conditioners (described on this page).**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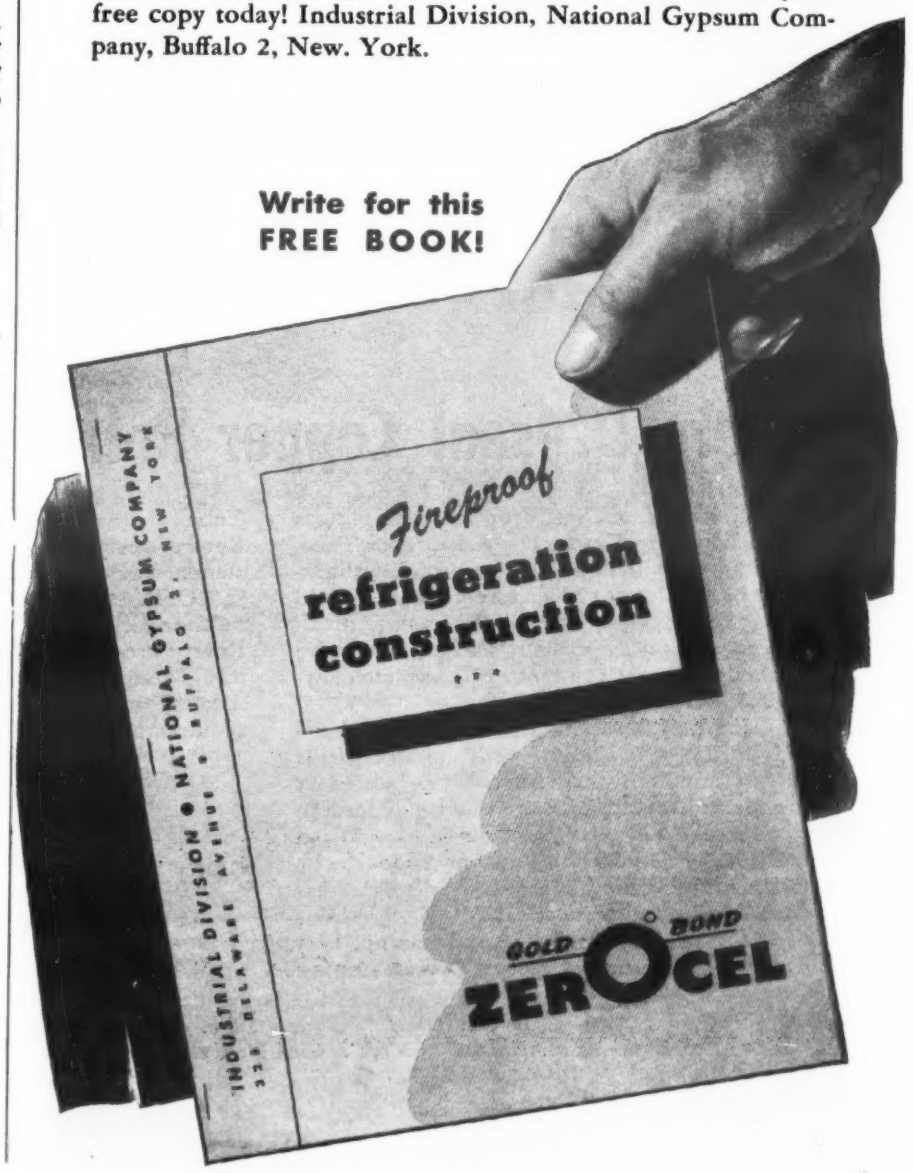
**Write for this FREE BOOK!**



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# Navy Uses Several Tricks to Adapt Refrigeration to Shipboard Service

NEW YORK CITY—"Reliability is of prime importance for the refrigeration equipment installed on U. S. naval vessels," declared Commander C. V. Hawks of the Navy Bureau of Ships, who told members of the American Society of Refrigerating Engineers at their annual meeting here recently what the Navy is planning in the way of a refrigeration program.

As reported in the NEWS of Dec. 23, Commander Hawks said that the Navy intends to re-equip all its ships with more or less standardized refrigeration systems in a three-year program which should begin in 1948 after intensified developmental work during the next 18 months.

### *Navy's Requirements*

In addition to reliability, Commander Hawks enumerated nine more requisites of naval refrigeration equipment: Simple in operation; ease of maintenance; economical; safe; inexpensive; light weight; compact; easy to manufacture, and standardization to permit stocking of parts at advance bases.

Pointing out that "on V-J Day there were installed aboard vessels of the U. S. Navy approximately 25,000 condensing units having a total refrigerating capacity of about 41,500 tons of refrigeration," Commander Hawks limited his discussion to refrigeration for food storage.

"Due to the absolute necessity of maintaining ship's stores under refrigeration, the highest degree of reliability has been required in the refrigerating systems installed," he declared. "A spare compressor-condenser unit is required for all installations, regardless of the number of units installed.

"For example, on a certain group of vessels having a normal load of 2 tons with 18-hour operation, two 2-ton compressors would be installed. On a vessel having a 10-ton load, three 5-ton units would be used. This arrangement makes one machine available for any necessary repair or overhaul without losing refrigeration.

"All such installations are piped to permit use of the spare machine on a part of the load during extreme conditions or for pull-down immediately after loading," continued Commander Hawks. "This cross-connection of piping is required to be such that each machine will operate only on its individual circuit, and operation of two machines in parallel on a common load is forbidden except in cases of emergency."

### *Radical Changes Needed*

Radical changes in design are required to adapt condensers for use with sea water, he emphasized. To minimize the corrosive effect of sea water and minute particles of entrained air, Navy specifications on condensers at the present time call for 70-30 copper-nickel alloy tubes and tube sheets; seamless brass shells, and water heads of cast gun metal or cast valve bronze. Deep heads are required, and water velocity at the inlet flange is limited to 6½ f.p.s. to prevent tube end corrosion.

Non-ferrous receivers large enough to hold most of the refrigerant charge are generally required for each system, because the standard automatic control system utilizes a suction pressure switch for motor control, and each refrigerant circuit is pumped down more or less before the compressor cuts out, he explained.

"Room coils are made from copper tubing, tinned on the outside only, and in practically all instances are located on the bulkheads or side walls of the compartment. Coils are supported by conventional angle or strap hangers, galvanized after fabrication and protected by removable battens. This type of construction," said Commander Hawks, "provides a duct for airflow downward over the cooling coils; special floor gratings permit the chilled air to spread along the deck lagging under the stores.

### *Fans Specially Designed*

"Mounted overhead are vertical circulating fans of special design drawing air upward axially and discharging radially over the stored goods and outward to the wall coils. This air recirculating system provides, in effect, an envelope of moving air surrounding the stores by means of which the greater part of the heat leakage through the insulation is picked up in the air stream and carried to the coils."

In the 15° F. compartments devoted to meat storage an "even more positive" recirculating system is employed in recent designs for vessels larger than destroyers, added Commander Hawks. One or more vertical "axi-flo" fans which can handle the gross volume of room air in about three minutes is located at the top of a vertical suction duct and discharges through a diffuser to produce horizontal airflow at or near the overhead.

"The bottom of the circular, vertical duct terminates in a square or rectangular box mounted on the deck, with inlets for connection to horizontal ducts. These ducts are same height as the removable deck grating which is fitted closely around the ductwork to form a continuous floor surface and extending outward to the wall coils.

"This provides a positive circulation of cold air from immediately below the coils, which is distributed horizontally over the top of the stores in addition to the natural circulation downward over the coils, and the spreading over the deck through the floor gratings."

### *Automatic Controls a Must*

It is imperative that the Navy have automatic controls for its refrigeration equipment, and "they've worked admirably well," declared Commander Hawks. Control of individual refrigerated compartments is achieved by one or more thermostats which actuate liquid solenoid valves in each coil circuit. Together with a strainer and a thermal expansion valve, the solenoid is located in a manifold, either one piece or fabri-

*(Concluded on next page)*

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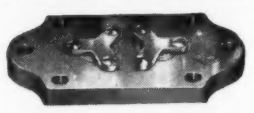
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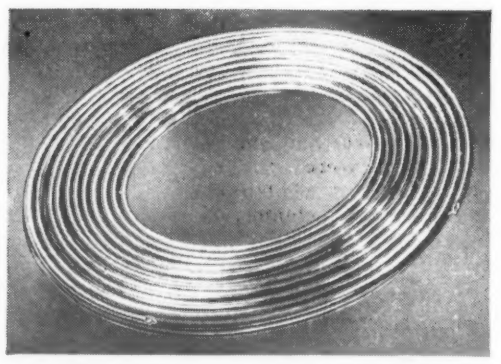

Revere Dryseal Copper Refrigeration Tube

THERE may be one last drop in an empty gas tank, but *not* in Revere Dryseal Copper Tube. For exacting installations—where even the slightest trace of moisture or other foreign matter could obstruct flow or cause expansion valves to "stick"—you can rely on Revere Dryseal. Its distinctive sealed ends are your assurance of complete dehydration and cleanliness.

Each length of Revere Dryseal is carefully dehydrated during manufacture until its interior is bone dry, and it is then immediately sealed at both ends to keep all moisture and other foreign particles *out*. This tube is made of deoxidized copper (99.9+% pure) and is kept oxide-free by special processing methods. It is dead soft so that you can bend it and work it easily.

Made for refrigeration, air conditioning, heat control and other services, Revere Dryseal Copper Tube is being shipped to distributors as rapidly as Revere can produce it without lowering its top standard of quality. It comes in sizes from ⅛" to ¾" O. D., with .035" wall, and is standard in 50-foot coils. Revere Dryseal and the many other Revere products are handled by leading distributors throughout the country. A Revere Technical Advisor will gladly consult with you about your requirements.

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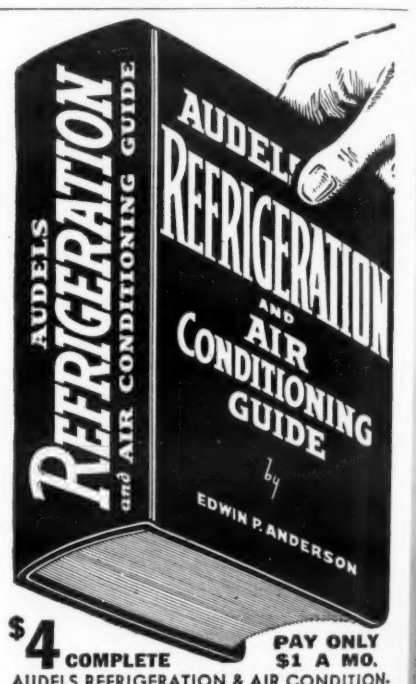


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# Navy Tells How It Changed Storage Rooms To Supply More Frozen Foods to Crews

*(Concluded from preceding page)*

cated, and the three units arranged in a three-valve bypass to permit servicing without interruption of operation. The bypass valve is usually a hand expansion valve.

"Thermostats are adjusted for a differential of 2° to 3° and set to cut in at design temperature or 1° higher, and to cut out about 2° below design temperature. In 15° F. rooms where more than one thermostat is required, they are connected in parallel to open all solenoids, since no harm will result from low spot temperatures," he explained.

"For 40° F. rooms each thermostat bulb is located to reflect the temperature of that part of the space adjacent to the coil circuit which it controls, and is wired to energize only the solenoid of that coil. A warm spot would, therefore, cause refrigerant to be admitted only to the coil circuit near that spot, avoiding over-cooling of other parts of the room and possible freezing of fruits and vegetables.

### *Multiple Systems*

"In most cases, a single compressor must handle, or be able to handle simultaneously, rooms at 15°, 32°, and 40° F. For the 15° F. rooms, a -5° F. refrigerant temperature ['Freon-12'] has been found desirable, and tonnage ratings of all refrigerating plant compressors for Navy use are based on that suction temperature.

"To prevent excessive dehydration of stores carried at 32° and 40° F., the specifications require that the coil temperatures for these spaces be not less than 7° and and 15° F., respectively. Conventional back pressure regulating valves are used to maintain these coil temperatures, and Navy specifications require that one such valve be supplied for each coil circuit in order that each circuit may be a complete unit."

The storage rooms on board ship are usually kept locked, so the controls are located outside the refrigerated space to provide accessibility at all times.

Ordinarily, distant-reading dial type thermometers are mounted in each compartment with the tubing running to convenient central locations and the dials mounted on an instrument board. Electrical resistance type thermometers have been employed on some of the larger naval vessels, permitting room temperatures to be checked from the machinery room itself.

Changes were made during the war when ships in the Pacific fleet found that they often had to stay at sea much longer than their original designs called for. This meant that their usual complement of foods would not suffice. Given their choice, the crews decided in favor of fresh meats and canned or dried vegetables rather than have more fresh vegetables and less meat.

"Numerous vessels were modified to permit carrying greater quantities of frozen meats, and all later designed combatant vessels incorporated this feature," disclosed Commander Hawks.

"To accomplish this, all 40° F. rooms were coiled to maintain 15° F. when necessary. Back pressure regulating valves were installed, as for 40° F. rooms, and set for a suction pressure that would maintain the 40° F. temperature with the amount of coil surface installed.

"For operation at 15° F. the back pressure valve was bypassed, the coil temperature lowered to the compressor suction temperature, and the thermostat set to cut in at 15° F. and out at 13° F. For operation at 40° F., the bypass was closed, coil temperature increased to about 23° or 24° F., and the thermostat reset to cut in at 40° F. and out at about 38° F."

### *Various Controls Used*

"In the compressor room, the automatic control features consist of a high pressure cutout, a low pressure cutout, a water failure switch, and magnetic starters for compressor and pump motors. Motors, except for 2-hp. air cooled units and smaller, are two-speed or adjustable speed to provide capacity reduction for low load operation. The compressor motor controllers provide manual speed change and are ordinarily supplied with low voltage protection.

"The high pressure cut-out and the water failure switches are wired into the control circuit in such a way that manual restarting of the motor is not required after the opening of either switch, but the circuit is restored automatically upon closing of the switch. The low pressure switch is connected in a similar manner, but through a "Hand-Off-Automatic" switch which, in the "Hand" position, shorts out the low pressure cut-out. For most plants this switch is set to cut out at about 1 or 2 p.s.i. and to cut in at about 5 or 6 p.s.i.

"When circulating pumps are installed, the pilot circuit of the pump controller is energized from the compressor controlled in such a way as to stop the pump whenever the compressor motor stops, and to start the pump motor before the compressor motor; this closes the water failure switch and completes the circuit for starting the compressor motor.

"It has been found necessary," continued Commander Hawks, "to prevent the possibility of liquid leaking over to the low side when the compressor is stopped either by the high pressure cutout, the opening of overload relays, the operation of the low voltage protection, or by pressing the controller stop button. For this purpose a solenoid circuit was first taken out of the controller in such a way that it would be de-energized under any of these conditions.

"At the same time, the controller wiring had to be such that opening of the low pressure switch would not interrupt this solenoid circuit and cut off all admission of liquid to the coil with the consequent inability again to start the motor by building up coil and suction line pressure.

### *Control Problem Solved*

"This system of solenoid control accomplished its purpose, but the electrical wiring became complicated when it was necessary to connect any one of three motor controllers to one, two, or three loads. Rotary selector switches provided a means of accomplishing this, but the satisfactory operation of the whole plant is dependent on this single piece of mechanism.

"To overcome this undesirable condition, a simple solution was found. Since each compressor, condenser, and receiver operate as a unit, it is only necessary when the compressor stops to interrupt the liquid flow from the receiver instead of stopping the flow into each of a number of coil circuits.

"By installation of a 'King' solenoid in the main liquid line from each receiver, wired back into its compressor motor controller, as described above, the same results are accomplished with a great simplification of wiring. With this arrangement, individual coil solenoids and solenoid circuits may be energized from any convenient power source."


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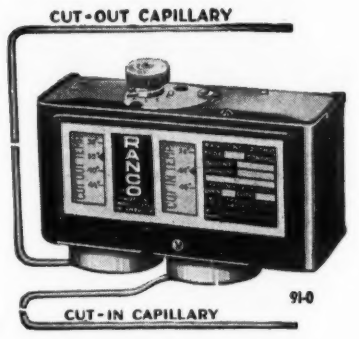


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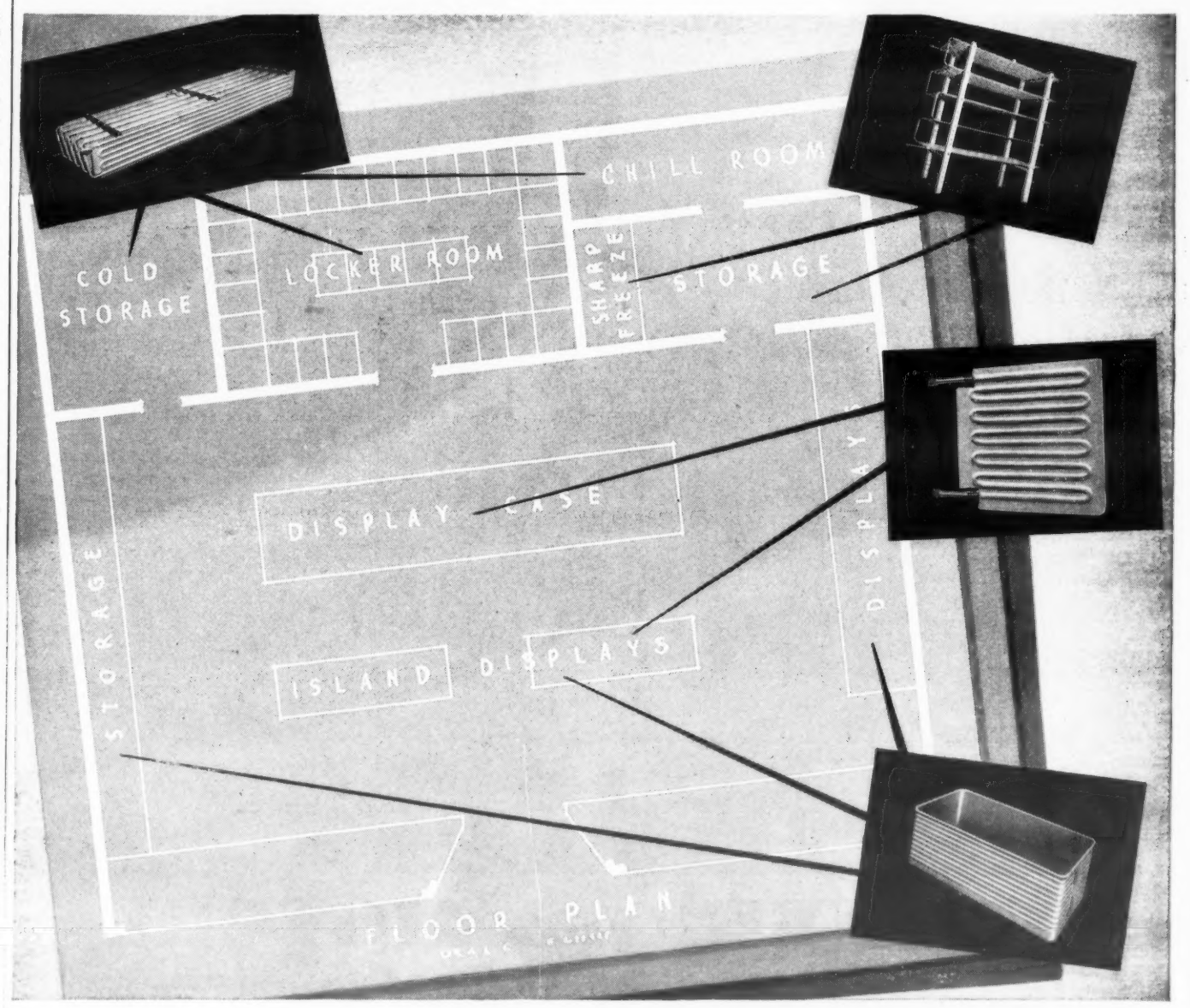


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# Many Devices To Improve Installations

H. F. Stamps of Henry Valve explains the Henry liquid level control to J. L. McCann, Harry Graff, and T. H. Hubbard, all of Harris Pump & Supply Co., Pittsburgh.

### *Henry's Liquid Control Has Variety of Uses*

A liquid level control for high pressure fluids, including refrigerants, which features easy adjustment of both the operating differential and the liquid level was shown for the first time at the exposition by the Henry Valve Co. of Chicago.

Hermetically sealed, the new control is claimed to be explosion and vapor-proof. A single wing nut adjusts the operating differential while another wing nut is employed to set the control at various liquid levels.

Control mechanism of the float switch is actuated by a magnet "floating" inside a tube. The magnet attracts a lever, which, in turn, opens or closes a Microswitch. Adjusting the throw of the lever by a wing nut changes the differential, and vertical adjustment of the switch-lever mechanism on the tube varies the float level.

### *Filter 'Watchman' Tells When Change Is Needed*

Research Products Corp. introduced its new Filter Watchman, a device designed to indicate automatically when the filters in air conditioning units (furnaces, central systems, room coolers) should be changed. When filters become loaded, the Watchman turns on a low-voltage indicator light.

According to the firm, each Watchman unit is adjusted at the factory for use either in residential or industrial air conditioning units. The unit is set in the blower chamber, with the rubber inlet tube protruding out through the inlet side of the filter or filter ledge.

Watchman units are intended to eliminate fuel waste due to excessively dirty filters and to eliminate the unnecessary expense of replacing filters which are not loaded to their rated capacity. They now are in limited production.

Also on display was Research Products' new all-metal air filter made of washable alumaloy expanded foil. Designed some time ago but just now being produced, it is for industrial filter installations and central air conditioning systems. It is formed in the Research "honey-comb" pattern.

A third new product shown was the snap-in type grid designed to simplify industrial filter bank maintenance and to effect economy.

### *Air Conditioning Grilles Adjustable to Season*

Vertical and horizontal bar type air conditioning registers which can be adjusted for either summer or winter operation were among products shown by United States Register Co. Also displayed were several types of floor, baseboard, and sidewall registers and vent and cold air faces.

### *New Construction To Make Blowers Quiet*

Quietness of operation is one of the major features claimed for the new postwar blower shown at the exposition by Viking Air Conditioning Corp. of Cleveland. To demonstrate its claim Viking operated a new blower in its booth and gave visual demonstrations of the noise produced, using a microphone hooked up to an oscillograph to reproduce the sound waves electrically.

Viking also made good use of a stroboscope lamp to "stop" the blower in high-speed operation so that it could be inspected. Another point in showing both the oscillograph and stroboscope was to demonstrate the extent of research conducting by the firm, declared M. I. Levy, president.

The new blower is equipped with a streamline bearing support to reduce air restriction at the intake. The blower shaft is mounted in a resilient ball-joint type bearing, while the wheel is of continuous stamped construction.

Also shown by Viking was the Series 1300 humidifier designed for original installations in the new small type furnaces being produced. Constructed of all copper and brass, the humidifier has a 16 in. long pan and pressed fiberglas plates.

Joan Dorman of Cleveland and a giant Anemostat air diffuser, one of the features of that company's display, which was one of the largest at the Exposition. Not in the Anemostat display, but attracting considerable attention in the McCracken "jet furnace" exhibit, were the special diffusers designed for use with the jet furnace.

*(All photographs by Austin Jones, Kerotest Mfg. Co.)*

### *Wide Fan Selection In Torrington Line*

Full line of air impelling equipment, including the "Airotor" blower wheels and "Airstocrat" propeller fan blades was featured in the booth of Torrington Mfg. Co.

The blower wheels were shown in their numerous sizes and types, and a broad range of propeller fan blades were also on display. Eight types and styles of the latter were shown, including standard and pressure fans, attic fans, and inexpensive models incorporating design features similar to the top models in the line.

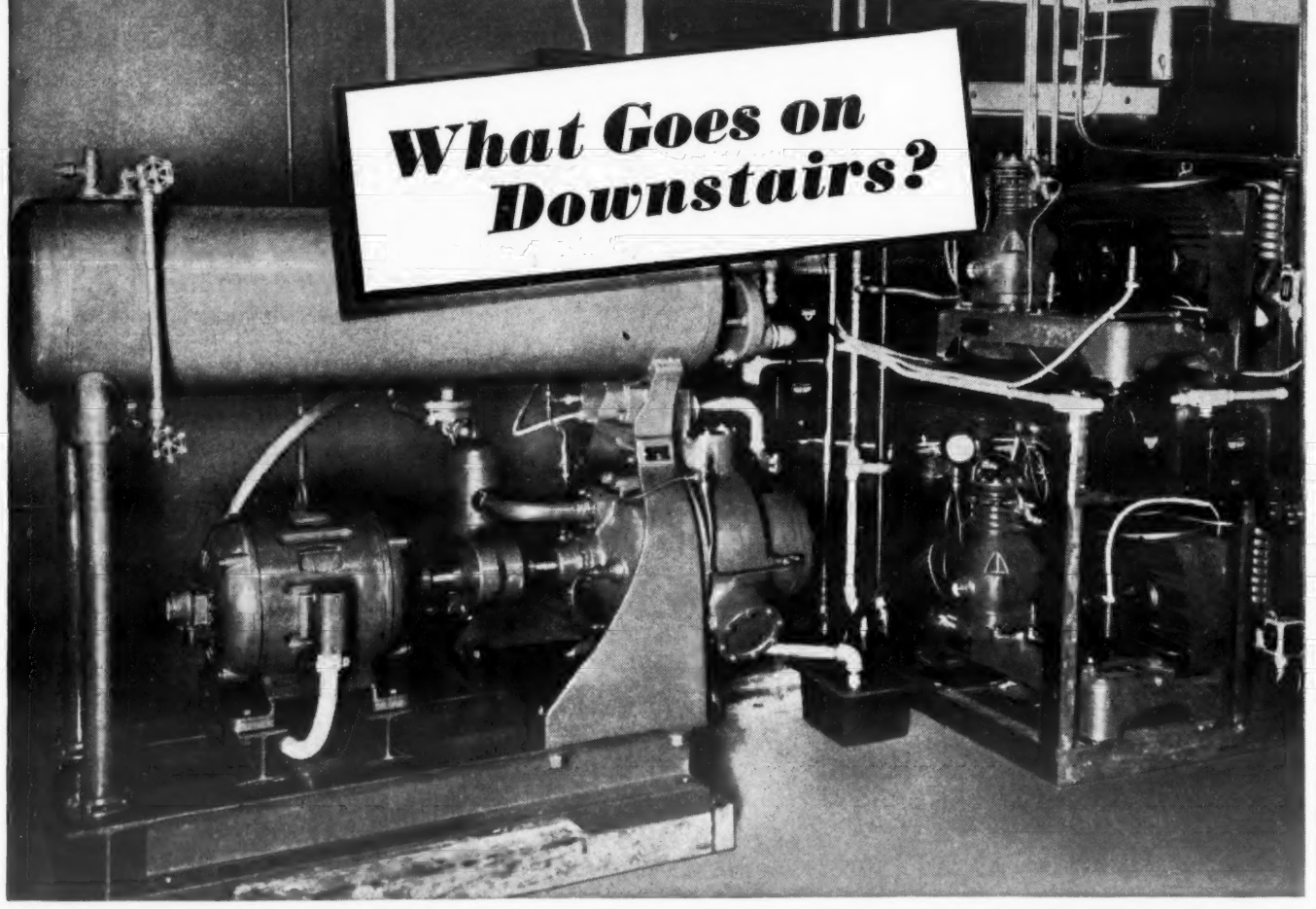
No new production items were on display, but Torrington did show some types of blower housings which may possibly go into production eventually.

### *Anemostat Outlets For New 'Jet' Unit*

Latest development by Anemostat Corp. of America was not on display in that firm's huge, spectacular booth, but around the corner in the popular space where Kerns & McCracken Corp. showed off its new Jet-Heet Furnace.

This development is a new air-diffuser designed to be used in conjunction with the furnace, a powerful midget hot-air furnace employing the combustion principles of the aircraft jet engine. In this system, flexible ducts run under floors and over ceilings to the specially designed Anemostat outlet which permits volume control by an adjustable knob.

The ultra-modernistic Anemostat booth designed by Joseph Molitor contained models of the firm's ceiling and wall type draftless air diffusers, with some units in operation for demonstration purposes. Visitors also saw installation photos and slides. A diagram on the blue, black, and white front panel, which reached to the ceiling, illustrated Anemostat's air-diffusion system.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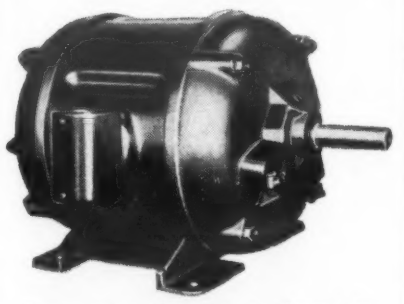

The motor illustrated above is typical of the Wagner complete line of polyphase and single-phase motors.

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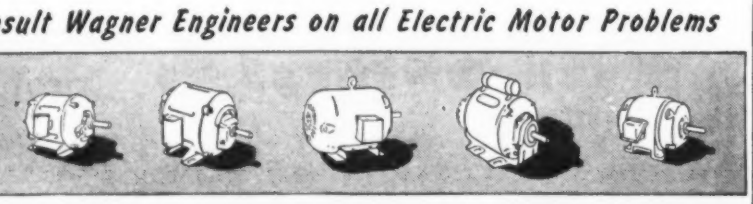

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## At the Formation of the Buckeye RSES

Among those who participated in the forming of the new Buckeye State Association of the R.S.E.S. recently were (left to right) H. T. McDermott, P. B. Reed, M. Bokesch, Sr., Forrest Poole, J. R. Nichols (president), Earl Yockey, Warren W. Farr, and Walter Wright.

* * *

(Photograph by Austin Jones, Kerotest Mfg. Co.)

# J. R. Nichols Elected President of Ohio State Association at Columbus Meeting

COLUMBUS, Ohio — With nearly 200 in attendance, a two-day session to organize the Buckeye State Association of the Refrigeration Service Engineers Society was held here Jan. 25-26 at the Seneca hotel and the Battelle Memorial Institute, the Columbus R.S.E.S. chapter serving as hosts.

Besides working out the organizational details and electing officers, the new association heard two technical papers and three others on phases of service work, in addition to attending an informal buffet supper and party. The latter was held Saturday evening at Colso Hall, through arrangements with the Central Ohio Supply Co.

J. R. Nichols of Medina, Ohio, is president of the new state group; Paul Sizer of Toledo, vice president; R. Wagner of Dayton, secretary; Carl Deiter of Youngstown, treasurer; Forrest Poole of Portsmouth, sergeant-at-arms; and A. M. "Pop" Fenwick of Cleveland, educational chairman. Temporary secretary preceding the actual organization was M. Bokesch, Sr., of Youngstown.

At the opening session, Earl Yockey, member of the International R.S.E.S. board of directors, made the welcome address, followed by committee reports from Walter Wright of Cleveland and Messrs. Poole and Nichols. "Refrigeration Substitution" was discussed at this session by P. B. Reed, educational chairman of the R.S.E.S.

"Advantages of a State Association" were outlined by H. T. McDermott, international secretary of the society, Sunday morning, which also saw the presentation of the constitution by Mr. Wright and a discussion of "Minor Repairs to Motors" by P. F. Williams of the Century Electric Co.

Following a noon dinner, Warren W. Farr, president of the National Association of Refrigeration Contractors, reminisced regarding the early days of servicing. Charles R. Neeson of Airtemp Division, Chrysler Corp., spoke on "Two-Stage Refrigeration with 'Freon-22,'" and George Schuld, a Cleveland contractor, discussed "The Service Man Speaks."

## Willoughby, Branch Service Head, Killed In Accident

DETROIT — Walter Willoughby, service manager of the Detroit branch of Liquid Carbonic Corp., was killed recently in an automobile accident near Owosso, Mich.

He died in Owosso's Memorial hospital of injuries suffered when his car struck a school bus, police said. Although there were no children in the bus at the time of the accident, the bus driver was injured.

## McCord Predicts Sales For January May Surpass Record of Previous Months

DETROIT — January sales and earnings of the McCord Corp. should equal, and maybe surpass, those of any previous month of the current fiscal year, ending Aug. 31, A. C. McCord predicted after viewing partial returns for the month.

His statement was made in an interim letter to the stockholders. Orders on hand, Mr. McCord revealed, were $13,714,000.

Net earnings of $493,852 for the quarter ended Nov. 30, 1946 exceeded those for the entire fiscal year of 1946 when the net profit was $487,243.

"The succeeding month of December showed a net earning of $191,965. This brought the total earnings for the first four months up to $685,817, or approximately $75,000 above our annual earnings during the war period," the letter reported.

## Westinghouse Book Aims At Farm Electrification

PITTSBURGH — For contractors, jobber salesmen, dealers, and farmers themselves, a comprehensive 44-page book covering every step of farm electrification and wiring has been published by the Westinghouse Electric Corp.

One major roadblock to volume use of electric products that help the farmer make a better living is inadequate wiring, and this book treats this technical subject in simple popular terms. It lists many electrical applications according to farm enterprises—dairy, poultry, shop, and machinery shed, crops, water supply, home—tells their value to the farmer, and the electric power requirements of each. A check list is provided to help the farmer plan for his immediate needs, as well as applications to be added later.

A simple explanation of voltage drop with charts shows why good wiring is necessary to prevent loss of effectiveness of a large dollar value of equipment. Charts are provided from which the contractor may make direct readings of the wire size required for a given voltage drop, current, and length of circuit. There are eight charts for 115 and 230 volts for 1%, 2%, and 5% voltage drop. Two of the charts apply to motors.

These charts permit a ready check on the effectiveness of existing wiring. Diagrams and tables give recommendations as to the number of circuits, location and spacing of lighting, convenience and heavy duty outlets according to farm enterprises similar to the list of applications.


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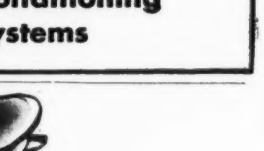
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## New Cleaning and Coating Agent Said To Clean Metal, Inhibit Rust, Bond Finish

AMBLER, Pa.—A phosphatic detergent and coating agent, known as "Duridine," which is said to clean and, at the same time, phosphate coat almost all metal surfaces in preparation for finishing with durable paint, is being produced by the American Chemical Paint Co. here.

A descriptive circular issued by the company says that Duridine, formerly known as 210-B Deoxidine, seeks out and carries off all harmful surface dirt, oil, and grease.

In addition, the phosphate coating which results from a Duridine bath, inhibits corrosion and acts as a bonding film for the subsequent organic finish.

Duridine, in powder form, is merely added to fresh water to prepare a bath. It may be applied to the metal surface by either the spray or dip process.

The manufacturer supplies technical data sheets detailing the uses of the chemical.

## Crystal Springs Packing Co. Plans $180,000 Expansion

MEDFORD, Ore.—Crystal Springs Packing Co., 139 S. Fir St., has announced plans to build a new packing plant and a new storage plant in the near future. The nearly 40,000 sq. ft. of additional facilities will cost about $180,000, according to company officials.

# CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $2.50 per insertion. Limit 50 words.
RATES for all other classifications $5.00 per insertion. Limit 50 words.
ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count.

### POSITIONS WANTED

FACTORY REPRESENTATIVE — proven executive and sales ability, engineering education. 18 years in refrigeration and air conditioning, experienced contacting manufacturers, jobbers, and distributors as sales and application engineer. Wants position with manufacturer as field representative working out of St. Louis, Mo. Salary or commission basis. References, BOX 2211, Air Conditioning & Refrigeration News.

DESIGN ENGINEER, 33, married, background covers design, sample building, experimentation and production of small commercial and domestic refrigerators. Seven years experience. Specific abilities include design and cabinet structure. Capable and experienced in holding supervisory positions. Can furnish excellent references. BOX 2222, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICE and installation position as service manager, air conditioning, commercial, household and appliances or dealer, sales and service. Field contact man. BOX 2229, Air Conditioning & Refrigeration News.

VETERAN, 29, married. Mechanically inclined with 8 years experience servicing, engineering, installing commercial refrigeration. Desires position with reliable manufacturer or distributor. Would consider a sales and application position for the Northern Wisconsin, Michigan territory. For references and details write BOX 2231, Air Conditioning & Refrigeration News.

YOUNG GRADUATE engineer experienced in testing, design, erection, operation and supervision. Desires responsible position with Western state refrigeration or frozen products concern. Full details available. BOX 2232, Air Conditioning & Refrigeration News.

### POSITIONS AVAILABLE

HIGH CALIBER salesman to represent York refrigeration Lancaster and York Counties. Man qualifying can net $10,000 a year. Hard work and experience commercial refrigeration and air conditioning necessary with established awake organization. Fine territory. Communications will be confidential. Address: CHARLES EYSTER, President, GOODLING ELECTRIC CO., York, Pa. giving qualifications.

SALES ENGINEER—$300 per month, plus commission, if you qualify. Only man with proven sales ability; complete refrigeration; air conditioning engineering, sales experience need reply. Knowledge of store-bar fixtures helpful. Must be able to figure-cost all jobs as well as sell them. REFRIGERATION SALES CO., 5638 Hohman Ave., Hammond, Ind. Sheffield-500.

APPLICATION-SALES engineer—position with fast growing refrigeration and air conditioning equipment manufacturer. 5 to 50-hp. condensing units. Located central west. Unusual opportunity for men with sales experience and refrigeration training, between ages of 28 to 35. Give full details, salary desired, etc. Sales Manager (confidential), 1016 East Columbia, Evansville, Ind.

EXCELLENT OPPORTUNITY for man travelling States of Kansas, Nebraska, Iowa, and Dakotas to act as distributor or representative on proven motorless carbonator. National advertising program starting. Deliveries prompt. Compensation above average. BOX 2224, Air Conditioning & Refrigeration News.

REFRIGERATION MECHANIC with car for Brooklyn, N. Y. Must be thoroughly experienced in commercial installation and service work. A-1 references only. Very attractive proposition for the right party. Give full details in first letter. BOX 2225, Air Conditioning & Refrigeration News.

WANTED: COMMERCIAL refrigeration service man for installation and service. Ideal working conditions, time and a half for over 40 hours. State qualifications in first letter. Our employes know of this advertisement. Location—Cleveland, Ohio and vicinity. BOX 2227, Air Conditioning & Refrigeration News.

SALES ENGINEER with field experience in air conditioning and heating wanted by Midwest manufacturer of blower units and finned coils. Background of mechanical engineering and thermo dynamics preferable. Write giving age, education and experience. Salary open. BOX 2228, Air Conditioning & Refrigeration News.

FACTORY REPRESENTATIVE and salesman to represent manufacturer of ice cream freezers, frozen food cases, and double duty display cases; to local retail dealers in the state of South and North Carolina & Virginia. BOX 2233, Air Conditioning & Refrigeration News.

### EQUIPMENT WANTED

DEALERS: I buy compressor units of all marks, all quantities, and pay good prices. R. ARIAS MIRANDA, San Rafael #466, Havana, Cuba.

WANTED: 100—18 in. x 22 in. x 30 in. Master Drawer lockers, 200—18 in. x 18 in. x 30 in. Master Door lockers. Write P. O. BOX 488, Dodge City, Kan.

WANTED TO buy for export new domestic refrigerators, electric or gas, large quantities—all sizes and makes. State prices and deliveries. Deliveries over extended periods will be considered. Excellent opportunity for small manufacturers to share in export trade. BOX 2212, Air Conditioning & Refrigeration News.

### EQUIPMENT FOR SALE

MOTORS AND condensing units. Available at once, ⅛ & ⅕ Hermetic units and ¼, ⅓, ½ condensing units, also ¼, ⅓, ½ hp. motors—single phase capacitor or repulsion induction. All products by National Manufacturers. ALBROD CORP., 319 West 48th St., New York 19, N. Y. CI. 6-9100.

IMMEDIATE DELIVERY—new air conditioning equipment. Weathermakers complete with motor, "Freon" coil, etc. 2 ton to 25 ton. SWSI, DWDI, and twin centrifugal blowers, propeller fans, heating and cooling coils, evaporative condensers, self-contained air conditioning units, condensing units. CONTROLDTEMP CORP., 236 Butler St., Brooklyn 17, N. Y.

IMMEDIATE DELIVERY—one new evaporative condenser, copper evaporative condenser coil, 4½ tons capacity. Governair Model No. EC 113F. Crated $529. F. P. DiCESARE CO., Phone 2-9081, 142 South 5th St., Steubenville, Ohio.

CONDENSING UNITS (Genuine) ¼ and ⅓ hp. complete. Write for particulars and prices. Good quantities available. DRAFT-MASTER REFRIGERATION, INC., Designers—Manufacturers, 1703-5 W. Baltimore St., Baltimore 23, Md. GIlmor 2185—EDmondson 4542.

FOR SALE: 1,000 new flip covers and frame assemblies for freezers and ice cream cabinets. Two popular sizes. ¼ to 2 hp. new and remanufactured condensing units, also new aluminum ice cube trays. EDISON COOLING CORP., 310 E. 149th St., Bronx 51, N. Y.

IMMEDIATE DELIVERY freezers open and closed glass top, stainless steel top, canopy type, 20-44 cu. ft. Florist Dairy boxes, bottle coolers, double duty display cases. Ice cream cabinets, storage boxes, wood-metal. 4-6 can milk coolers, reach-in refrigerators. Water Fountains. FRIGITEMP CORP., 931 Bergen St., Brooklyn 16, N. Y. MA 2-9093.

ICE CREAM cabinets, dry beverage coolers, home and farm freezers, open type frozen food cases with superstructure, reach-in refrigerators. All equipment with and without units. Immediately attractively priced, exclusive distributorships available. GENERAL REFRIGERATORS CORP., 678 Broadway, New York (12) ST 9-1222.

1000 MOTORS, FOR sale, from stock ⅝ hp.—3425 RPM—3 ph/230 V. (Underrated—easily equal to ¾ hp.) Ball-bearing, for vertical or horizontal. Enclosed Fr. ⅝ in. shaft. $36 each. This rugged motor cannot burn out. (Glass insulated wire coils.) MODERN SUPPLY CO., 206 Fulton St., New York 7—CO 7-0100.

COMPRESSORS AND PARTS rebuilding—Compressors, float valves, water valves, low pressure controls, evaporators, water cooled condensers, condensing units and many other items replaced from our large stocks, or repaired upon receipt of your defective material. Send for our catalog-prices listed. REFRIGERATION MAINTENANCE CORP., 321 E. Grand Ave., Chicago, Ill.

SECTIONAL WALK-IN Coolers, Kiln dried fir front, spruce interior. Chrome hardware, metal saddle, finished shellac 4 in. Fiber $1.20 for freezers 6 in. Fiber $1.40 per sq. ft. Cork insulation prices on request. Limited number new refrigeration units, coils, etc. available. Send us your requirements. REFRIGERATION SPECIALTIES, INC., 721 Flushing Ave., Brooklyn 6, N. Y.

IMMEDIATE DELIVERY—new Copeland units with motors. Model 204 AFL—2 hp. —1PH—220 V—$345. Model 304 WFL—3 hp.—1PH—220 V—$465. New sectional storage coolers. 6 ft. wide, 8 ft. long, 6 ft. 6 in. high. Door in end. Dry fir lumber. 4 in. insulation, $365. M. E ROBERTSON, 2913 Columbia Road, Madison, Wis.

FLOAT REPLACEMENTS. For replacing defective high side floats on all household units. Regular charging connection, capillary tube setup, internal strainer and exact mounting plate. Part #2000-Westinghouse (4 hole plate), and #2010 (3 hole plate): Part #2020-Gibson Part #2030-General Electric (DR-1 & DR-2). Part #2040-For general replacement (undrilled plate). $6.75 each. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56.

SEALED CROSLEY TERMINALS. Installed from the outside in a few minutes without opening the compressor. Corrects leaky terminals on all Crosley "F-12" units. Set of three $6.75 (Part No. 1020). Installation tool $1.65. Immediate delivery. Money-back guarantee. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

FRIGIDAIRE METER-MISER Terminals. Installed from the inside. Fits compressors with bottom-mounted terminals. (Part No. 1060.) Set of three $2.85. WESTINGHOUSE TERMINALS. Installed from the inside. (Part No. 1030.) Set of three $2.85. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

NORGE CHECK VALVES. For open-type units. (Part No. 1040.) $2.55 each. SEALED NORGE terminal, packing washers. For repairing leaky terminals. Installed from the outside in a few minutes. (Part No. 1050.) Three sets (9 washers) $1.00. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

SEALED NORGE terminals. Complete assembly. Replaces shorted terminals. Installed from inside. (Part No. 1100.) Set of three $2.85. Sealed Crosley terminals. Installed from inside. Part No. 1070 for SO2 models. Part No. 1080 for "F-12" models. Part No. 1090 for "F-21" models. Set of three $2.85. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

COLDSPOT & BOHM compressor parts. Check valve sets consists of six parts: 1-spring, 1-brass valve cage, 1-ball, 1-disk, 1-new seat, 1-Neoprene washer. $2.50. Aluminum pump vanes, 4 to a set. (State size when ordering) $2. Flexible rubber coupling. $.25 each. Dome gasket $.20 each. SPINELLO ENGINE CO., 99 Woodland Ave., Kearny, N. J.

UNDERBAR WORKBOARDS, cocktail stations, dry beverage coolers and beer dispensers designed for water bath, circulating air, Temprite tanks and Penflo cooling systems for immediate delivery by one of the oldest bar interior equipment manufacturers in the East. SUPREME METAL FABRICATORS, INC. 27 Rodney St., Brooklyn 11, N. Y.

KOOLER KEG machines, almost new, cools 2 barrels beer. Original cost $900, our price $250. Also condensing units, new, up to 7½-hp. complete. Also two 3-hp. Brunner, new, less motor & condenser $175 each. U. S. REFRIGERATION CO., 1070 Atlantic Ave., Brooklyn 16, N. Y.

SECTIONAL WOOD walk-in storage boxes, 4 in. Fiberglass insulation, fir front, spruce interior, steel saddle. Built to specified size. Seven day delivery, $1.30 per square foot, F.O.B. New York. Condensing units available with box orders. Complete stock blowers, coils, plates. WHOLESALE DISTRIBUTORS, INC., 150-19 Liberty Ave., Jamaica 4, N. Y. Jamaica 6-1733.

FOR SALE: Immediate delivery on refrigeration units sizes ¼ to 15 hp., inclusive, air cooled, water cooled, or sealed units. All well known makes. Prices reasonable, limited quantities available in some of the sizes. Reply to BOX 2226, Air Conditioning & Refrigeration News.

ATTENTION DEALERS and exporters. We will have ready for delivery in six weeks rebuilt domestic and commercial refrigeration equipment. Standard makes. Write to BOX 2230, Air Conditioning & Refrigeration News.

### FRANCHISES WANTED

MANUFACTURERS: I request agencies or distribution of compressor units and ice-box cabinet manufacturers not yet represented in Cuba. R. ARIAS MIRANDA, San Rafael #466, Havana, Cuba.

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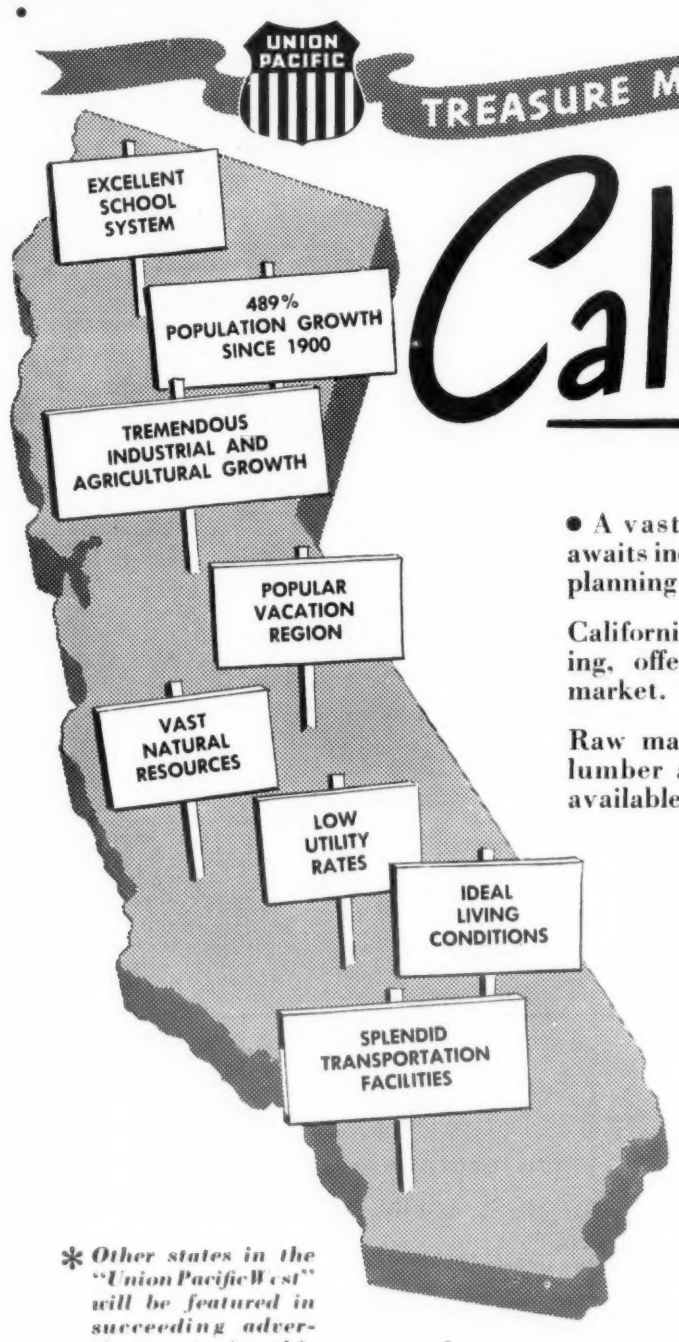
TREASURE MAP OF INDUSTRY

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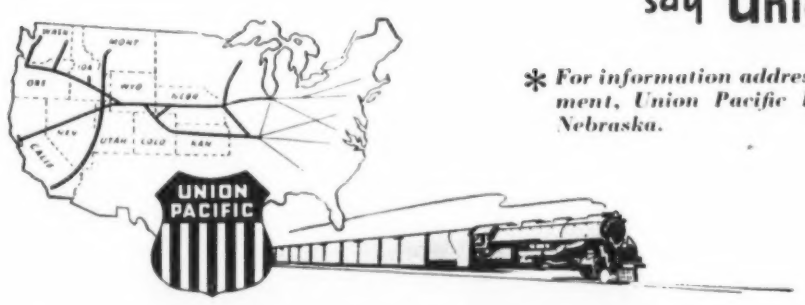
* *For information address Industrial Department, Union Pacific Railroad, Omaha 2, Nebraska.*




UNION PACIFIC RAILROAD
*The Strategic Middle Route*

# Refrigeration Problems

## And Their Solution

*By P. B. Reed*

**For Service and Installation Engineers**

**Manager, Refrigeration and Air Conditioning Division, Perfex Corp.**

## Watts & Power Factor

The power that a waterfall will supply depends upon how much water goes over the falls and how far it falls. A big stream will supply more power than a small one. Also, if the water falls a long distance it will develop more power than if it falls but a few feet. Thus the power developed by the water fall depends upon (1) the rate of flow (gallons per hour), and (2) the pressure due to the distance through which it falls.

### POWER DEPENDS UPON RATE-OF-FLOW AND PRESSURE

Electric power is much the same. The greater the rate of flow, that is, the amperage, the more power the current is capable of; and this is true also of the pressure, that is, the voltage. So the power of an electric current depends upon (1) the amperage (rate of flow); (2) the voltage (pressure of the current).

Under normal usage conditions the voltage and amperage of direct current are in step with one another; the amperage neither lags nor leads the voltage. Moreover the flow is comparatively steady and is in one direction. If the voltage is maintained constant, say 115 volts, and the load is steady, the amperage is constant, and the power required and the power supplied are also constant.

### ELECTRIC POWER IS MEASURED IN WATTS

Electric power is measured in watts; 1,000 watts being known as a kilowatt (kilo meaning 1,000). A watt is the power supplied by a current of one ampere at a pressure of one volt. Thus, 10 amperes flowing in an 115 volt d.c. circuit develops (10 x 115) 1,150 watts or 1.15 kilowatts (1.15 kw.). This same amount of power would be supplied by 1 ampere at 1,150 volts, 100 amperes at 11½ volts or 1,150 amperes at 1 volt. So, in d.c. circuits to get the power in watts, we multiply the amperes by the volts.

Power is the ability to do work. When we buy electricity we expect it to do some sort of work for us, run a motor, light a light, or heat a stove. Naturally one kilowatt working for two hours will do twice as much work as one kilowatt working for one hour. So we buy electricity by the kilowatt-hour (kwh.). One kwh. is one kilowatt working for one hour, ½ kw. working for two hours, 2 kw. working for ½ hour, etc.

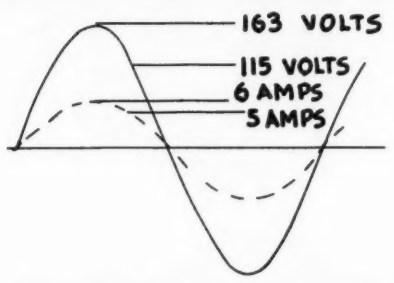



**Fig. 1 shows values of voltage and amperage with the current in phase.**

But, another factor enters into the matter of the wattage of a circuit carrying alternating current, for a.c. varies both in amperage and voltage many times in one second. As shown in Fig. 1, the voltage starts at zero, rises to maximum at ¼ of a cycle (½ of an alternation), drops back to zero at the ½ cycle point and starts to flow in the opposite direction.

It gets back to maximum again but in the opposite direction, at the ¾ cycle point and again drops to zero at the end of the cycle, ready to start another cycle. In ordinary a.c. current in this country, all this happens in 1/60 of a second.

If, as shown in Fig. 1, the voltage and the amperage are in phase (in step) the amperage goes through the same changes in direction and amount at just the same times in the cycle as the voltage.

### INSTANTANEOUS AND AVERAGE VALUES

At any instant in the cycle the instantaneous power is the voltage at that instant times the amperage at that instant. If, at the maximum points, the voltage is 163 volts and the instantaneous amperage is 8 amperes, the instantaneous power is (163 x 8), 1,304 watts (1.3 kw.).

The average or mean value of the voltage would not be the maximum condition but would be a little less than ¾ (.707, in fact) of the maximum, or 115 volts, which is the value that an ordinary voltmeter would show for that circuit.

The same is true of the amperage. The average or mean amperage would be a little less than 6 amperes (5.7, in fact) instead of the peak of 8 amperes. An ordinary ammeter in this circuit would read a little less than 6 amperes.

For alternating current, and as shown in Fig. 1, if the amperage and the voltage are in phase, then the power available would be 115 volts times 6 amperes or 690 watts (.69 kw.) just as in d.c.

### LAGGING AND LEADING CURRENTS

We know however, that due to the preponderance of inductance or capacity in an a.c. circuit, the amperage and the voltage are not always in phase; in fact, in ordinary practice they rarely are completely in phase. If there is too much inductance, the current *lags* the voltage; if there is too much capacity, the current *leads* the voltage.

Fig. 2 shows an alternating current with *lagging* amperage. Note that the peak of 163 volts does not come at the same time as the peak amperage so the instantaneous watts at peak voltage would be 163 times the value of the amperage *at that instant,* which, let us say is 5 amperes, so the instantaneous power is 815 (163 x 5) instead of 1,304 (163 x 8). A similar condition occurs elsewhere along the cycle. In fact, during two periods in the cycle the voltage and the current are in opposite directions.

### VOLT—AMPERES NOT ALWAYS THE SAME AS WATTS

Thus, even though the average voltage is 115 volts as before and the average amperage 6 amperes, also as before, the wattage would not be 690 watts (6 x 115) as before, for, being out of phase with the voltage, the amperage is not operating at the best voltage. If one-fourth its possible effect is lost, then the actual wattage would be one-fourth less than 690 or 518 watts (690 — 172).

In this case, 6 amperes at 115 volts develop only 518 watts instead of 690 watts because the voltage and amperage are out of phase. If they had been in phase, about 4½ amperes (518 ÷ 115) would have produced as much wattage as the 6 amperes.

### WATTLESS CURRENT

The difference between the 6 amperes and the 4½ amperes is sometimes known as "wattless current," for it produces no watts. In practice it is desirable to keep this wattless current as small as possible, for it requires the use of bigger generators, bigger transmission lines, and bigger transformers to do the same amount of work than would be required if this wattless current were zero, that is, if the voltage and amperage were in step.

If the voltage and amperage are exactly in step there would be no wattless current and the amperage and voltage would be 100% effective and the amperage times the voltage would give the watts. We would say the current would have an 100% "power factor."

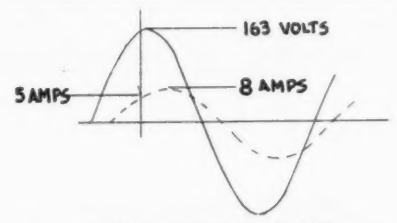



**Fig. 2—Value of current with amperage lagging the voltage.**

If the amperage were enough out of phase with the voltage so that ¼ of the current were ineffective or wattless current, then since ¾ or 75% was effective, we would say that the power factor was 75%. In such a condition, to find the power in watts we would multiply the average voltage by the average amperage and then by the 75% power factor. If the average voltage (as read on the voltmeter) were 115 volts and the average amperage (as read on an ammeter) were 6 amperes, then the wattage would be (115 x 6 x .75) 518 watts or ½ kw.

### WATT-METER CORRECTS FOR POWER FACTOR

A watt-meter corrects for power factor automatically and on this circuit would read 518 watts.

We buy our current by the kilowatt-hour, and it is measured by an "integrating" watt-hour meter which is a watt-meter that has built into it an electric clock-like mechanism that takes into consideration the time the power is used as well as the amount of power.

This also corrects for power factor, and if the 518 watts were used over a period of one hour the watt-hour meter would charge us up with approximately ½ kwh. and we would pay for that much electricity at whatever the rate per kwh. would be.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Here, at last, is a carbonator that eliminates the usual problems of making soda water at the point of sale. The HUDSON Carbonator is a complete, self-contained, motorless unit that delivers a steady flow of sparkling, carbonated water—at CONSTANT PRESSURE up to 125 pounds at the draft arm, regardless of water pressure in the city water line. This unusually compact unit takes little more space than 2—1 qt. beverage bottles. Measures only 16¾" x 9¾" x 3¾" overall and weighs only 17 pounds. It is entirely automatic, with 2 reciprocating cylinders that alternate in operation to provide a minimum capacity of 25 gallons per hour. Will also operate Coca-Cola dispensers and root beer barrels. May be installed in any sweet water bath or other conventional cooling system.

HUDSON **Constant Pressure** Carbonators are now original or De Luxe equipment on many well-known soda fountains. There are nearly 10,000 HUDSON Carbonators now in use daily throughout the world.

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# Meeting In Cleveland Sets ASHVE Record

*(Concluded from Page 1, Column 5)*

presentation of a technical paper in the same room where the research tests had been conducted, with most of the test apparatus on hand for inspection. This paper was entitled "Nature of Air Flow at Suction Openings" by A. D. Brandt, R. J. Steffy, and R. G. Huebscher.

B. M. Woods' election as president of the society for the coming year was announced at the meeting, along with names of the other new officers and council members. G. L. Tuve is first vice president; A. E. Stacey, Jr., second vice president; and J. F. Collins, Jr., treasurer.

Elected to the council for three-year terms were M. W. Bishop, C. F. Boester, Leo Hungerford, and R. F. Taylor. E. N. McDonnell will serve for one year. Newly elected members of the committee on research include R. C. Cross, M. K. Fahnestock, John James, F. J. Kurth, and T. H. Urdahl.

A. V. Hutchinson and Carl H. Flink were reappointed to the posts of secretary and technical secretary, respectively.

Besides the annual banquet held Wednesday evening with L. T. Avery as toastmaster and Dr. Kirtly Mather of Harvard University as the speaker, other entertainment features included the "Operation Relaxation" musical and comedy program Monday evening, and a social hour late Tuesday afternoon.

Technical papers covered a variety of subjects with all technical sessions well attended. Biggest turnout, however, came for the panel and radiant heating forum held Tuesday afternoon. With Prof. Carl F. Kayan of Columbia University as chairman, this session opened with short talks by H. H. Angus, Carl F. Boester, Dr. C.-E. A. Winslow, W. Bruce Morrison, and R. L. Byers, after which the meeting was thrown open to the floor for discussion.

The varied opinions and comments made at this discussion perhaps could be summarized with the statement that while radiant heating is not new, its application presents several difficulties, particularly with regard to control, and it is definitely not a cure-all for heating problems.

Additional data on the subject was presented by Prof. F. W. Hutchinson of Purdue University at the Thursday morning technical session when he reported results of a study on "Response and Lag in the Control of Panel Heating Systems."

Some phases of air conditioning also were brought out in other technical papers given during the meeting. "The Effects of Moisture Content on the Diffusion of Odors in the Air," presented by Richard L. Kuehner of York Corp., emphasized the point that while relative humidity does have some effect on the spreading of odors in air, its effect is not too pronounced, especially in the commercial air conditioning range, and its influence varies with the type of odor.

Odors and oxygen content of air were also discussed at length by Capt. A. R. Behnke who outlined results of tests undertaken for the Navy by William V. Consolazio and Louis J. Pecora regarding "Minimal Replenishment Air Required for Living Spaces" in which various air "purifiers" were studied. He indicated that of the substances tested, activated carbon appeared to give the best results.

Further research into the use of ultra-violet radiation to kill airborne bacteria in air conditioning or air-handling system was reported by A. H. Taylor of General Electric Co.'s lighting research laboratory, who discussed the paper, "Determining and Reducing the Concentration of Air-Borne Micro-Organisms" which he and Matthew Luckiesh, director of the G-E laboratory had prepared.

This talk was presented at a joint meeting of the A.S.H.V.E. and the National Warm Air Heating and Air Conditioning Association, held in the Public Auditorium.

## Mission Appliance Gets O. K. for New Factory

LOS ANGELES—Building permit has been issued for construction of a new steel factory building at Crenshaw and El Segundo Blvds., Los Angeles, for the Mission Appliance Corp. The new structure, to be 150 x 800 ft. in area, will cost $575,000.

## Pizor Promoted--

*(Concluded from Page 1, Column 5)*

specialist. During the war, he was executive assistant to O. H. Shenstone, manager of the company's Muskegon plant, and was in charge of industrial relations.

Mr. Frohlich has been identified with the sale of Norge products since 1930, and has been eastern sales manager a good portion of that time. Commenting on his move, Mr. O'Harra stated, "we regret Mr. Frohlich's departure from the factory staff, as his advice and counsel have always been sought in matters of sales policy. However, this important appointment is representative of the high regard in which he is held by our distributor friends, and we wish him nothing but the very best."

## W. K. McIntosh Retires as Liquid Carbonic Chairman

CHICAGO—W. K. McIntosh has announced his retirement as chairman of the Liquid Carbonic Corp. He will remain in the corporation in an advisory capacity and as chairman of the board of directors.

P. F. Lavedan, president of the corporation since 1941, became the chief executive officer upon Mr. McIntosh's retirement as chairman.

## Jeweler Plans Appliances

ATLANTA—LeMas, a new jewelry store at 97-99 Peachtree St. here, announces that it will handle appliances. The store recently held its formal opening.

## NARC Will Make Group International In Scope

CLEVELAND—To permit refrigeration contractors from beyond the borders of the United States to join the National Association of Refrigeration Contractors, plans are now being drawn up to amend the association's constitution and by-laws at its annual meeting next fall, NARC officials have announced.

In the meantime, applications can be accepted from foreign firms for membership carrying all privileges except voting power, they said.

First outside firm to join on the new plan is Reliable Refrigeration, Ltd. of Toronto, Ontario. It is represented by Donald Fowler.

NARC officials said that they had received inquiries from other Canadian and South American firms.

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